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A SYSTEM OF METAPHYSICS

BY

GEORGE STUART FULLERTON

PROFESSOR OF PHILOSOPHY IN COLUMBIA UNIVERSITY
NEW YORK

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TO

My Wife

JULIA WINSLOW FULLERTON

THIS BOOK

IS INSCRIBED

PREFACE

Some of the material in Chapters I, II, and V of this volume has already appeared in the *Psychological Review;* and Chapters XV, XVI, and XVII have been reprinted without very much change. They first appeared as articles in the same journal. In Chapter XXXIII I have made some use of two articles published in the *Popular Science Monthly.* The chapters on Space and Time are reprinted from the *Philosophical Review* with little change except that, in Chapter XI, some new matter has been added. To the editors of the journals mentioned, Professor Cattell, Professor Baldwin, and Professor Creighton, my thanks are due for their courtesy in permitting me to reprint as I have done.

Thus, about one-fourth of the present volume has already seen the light. It is right that I should say that nothing that has already appeared has been taken up into the book as an afterthought. From the beginning the work has been a unit; it has been for a number of years on my hands, and the publication of the papers above mentioned was due largely to a curiosity to see how the doctrines advocated would impress others. It was, perhaps, hardly fair to present them deprived of their setting, and this injustice, if injustice it be, is remedied now.

At the end of the book I have placed a note on the Physical World Order, by my former pupil, Professor Edgar A. Singer, Jr., of the University of Pennsylvania. It has seemed to me of especial interest, as coming from one trained in metaphysical analysis and familiar with the principles and methods of the sciences.

GEORGE STUART FULLERTON.

Columbia University,
New York, July, 1904.

CONTENTS

PART I

THE CONTENT OF CONSCIOUSNESS

		PAGE
I.	The Mind and the World in Common Thought and in Science	1
II.	The Inadequacy of the Psychological Standpoint	17
III.	How Things are Given in Consciousness	33
IV.	The Elements in Consciousness	56
V.	The Self or Knower	71

PART II

THE EXTERNAL WORLD

VI.	What we Mean by the External World	95
VII.	Sensations and "Things"	115
VIII.	The Distinction between Appearance and Reality	132
IX.	Significance of the Distinction between Appearance and Reality	146
X.	The Kantian Doctrine of Space	162
XI.	Difficulties connected with the Kantian Doctrine of Space	172
XII.	The Berkeleian Doctrine of Space	184
XIII.	Of Time	194
XIV.	The Real World in Space and Time	210
XV.	The World as Mechanism	226

PART III

MIND AND MATTER

XVI.	The Insufficiency of Materialism	245
XVII.	The Atomic Self	262
XVIII.	The Automaton Theory: its Genesis	284

PAGE

XIX. The Automaton Theory: Parallelism 298
XX. What is Parallelism? 313
XXI. The Man and the Candlestick 332
XXII. The Metaphysics of the "Telephone Exchange" . 342
XXIII. The Distinction between the World and the Mind . 364
XXIV. The Time and Place of Sensations and Ideas . . 385
XXV. Of Natural Realism, Hypothetical Realism, Idealism and Materialism 399
XXVI. The World as Unperceived, and the "Unknowable" . 415

PART IV

OTHER MINDS, AND THE REALM OF MINDS

XXVII. The Existence of Other Minds 433
XXVIII. The Distribution of Minds 458
XXIX. The Unity of Consciousness 473
XXX. Subconscious Mind 488
XXXI. Mental Phenomena and the Causal Nexus . . . 508
XXXII. Mechanism and Teleology 527
XXXIII. Fatalism, "Free-will," and Determinism . . . 550
XXXIV. Of God 570
XXXV. Of God (continued) 598
Note.—The Physical World Order 609

A SYSTEM OF METAPHYSICS

PART I

THE CONTENT OF CONSCIOUSNESS

CHAPTER I

THE MIND AND THE WORLD IN COMMON THOUGHT AND IN SCIENCE

It is impossible for the mature mind to turn back to the experiences of infancy, and directly to recall, by an exercise of memory, the beginnings of its conscious life. When we have attained to an age at which reflection is possible, and at which the impulse to reflect makes itself felt, the dawn of consciousness has passed into oblivion; and he who is curious to inquire how the world looked to him, when he first rolled an unmeaning eye at it, must be content with information gained in roundabout ways. As far back as we can remember, the world of our experiences has not been so very different from the world in which we now habitually live.

It was formerly, it is true, a more indefinite and a more incoherent world, less marked by clear distinctions and less orderly, more full of acutely delightful and acutely distressing surprises, more exciting and more mysterious. Memory gives us a series of pictures imperfectly representing the successive stages by which the more sober and orderly world of our later experience came into being. But as we journey into the past the pictures become more and more indefinite and incomplete, and the series comes to an end before their general outline has passed over into a something more rudimentary and of a quite different nature. The world which we can recall is always a world of *things*, among which we find one peculiar and interesting thing not to be placed precisely on a par with the rest, the self, which tastes, touches, and possesses things — the sun around which other things are made to revolve.

That this series of experiences has been preceded by other experiences in which such distinctions do not exist, and that they are

the result of a development from an experience of the world—if one may call it such—in which there are as yet no *objects* with definite relations to each other, may be satisfactorily established partly by reflection upon the series of experiences which we can recall, with the developments to be there observed, and partly by observation and interpretation of the actions of human bodies which reveal minds just passing through the earlier stages of their existence. Thus, there is good reason to believe that the distinction between the self and the not-self, a distinction which thrusts itself upon the attention of the developed mind with such insistence that we are inclined to read it into the experience of every mind, however rudimentary—there is good reason to believe that this distinction, like a multitude of others which make their appearance in later life, was not present at the dawn of consciousness at all.

But, however it may be with the infant mind, the mature man always finds himself in a real world of real things, and he distinguishes between himself, as knowing and acting upon things, and the things over against which he stands as a something apart and different. As has been said, he can remember no time at which he did not make some such distinction. Unless he be accustomed to reflective thought, it sounds to him highly absurd to speak of a conscious experience in which such distinctions do not obtain. Can there be, he asks, a pain that is felt by no one? Can there be knowledge, or even anything faintly resembling knowledge, unless there be something known and some one who knows that something?

His experience at every moment seems to fortify him in this position. He looks at the pen which he holds in his hand, feels it, is sure that he knows it, and that it is *he* that knows it. The pen seems capable of existing by itself, but surely it cannot know itself. It appears too immediately evident to call for proof that every act of knowledge requires the two participants, the knower and the known. When he suffers, he is convinced that *he* feels the pain, and he knows that he and the pain are not identical. He regards it as quite impossible to doubt the reality of such experiences, which repeat themselves everywhere in his mental life, and he listens with some impatience to any argument which seems gratuitously to cast doubt upon their reality.

That men actually do have such experiences as those cited it would be folly to deny, and something may be said for the plain

man who turns a deaf ear to the metaphysician, charm he never so wisely. We do know objects, and in the act of knowing, if we think about the matter at all, we are conscious of distinguishing between the knower and the objects known. One can have no legitimate quarrel with this experience, in itself considered, nor is it reasonable to attempt to explain it away. The only reasonable thing to do is to try to analyze it, and to indicate clearly just what elements it contains; in other words, to show plainly what the experience really is. That one may have experiences without being able to analyze them successfully, and that most men make little attempt to analyze their experiences, is matter of common observation. An experience unanalyzed is only half possessed, and may easily give rise to serious misconceptions.

It needs but little reflection to convince the man who feels so sure of the existence of the knowing self, of the object known, and of the activity exercised by the former, that there is much in his experience that is vague and indefinite. Some distinctions he readily makes which are not made by the child. For example, where it never occurs to the child to define in any way what he means by the self, the unavoidable half-conscious reflection to which one is impelled by everyday life leads the man to, at least, a dim consciousness of what is to be included under this name and what is to be excluded.

The child does not distinguish between mind and body; the self is a something vaguely distinguished from other objects, and in it the body stands out as the most prominent element, but there is no conscious distinction between the bodily self and the mental, with the consequent recognition of the latter as the true self which knows and acts upon things, and from which all other things, including the body, must be distinguished. To the man these distinctions have become more or less familiar. Vague and indefinite as his ideas are, he has arrived at somewhat the same way of looking at things as that adopted by the psychologist; and, indeed, it is not unreasonable to regard his view of the mind and the external world as constituting the beginnings of a science of psychology. He believes that he has a mind, though he has no very clear notion of what it is. He believes that this mind is intimately related to his body, which is a thing outside of his mind. He believes that through this body it is related to an external real world, from which it receives influences and which it can influence in return. In this

external world he thinks he finds other bodies more or less closely resembling his own, and believes that there are connected with them other minds, as his mind is connected with his body. Further, he believes that as he can express, by the actions of his body, ideas or emotions in his mind, so the minds connected with other bodies can give expression to their ideas or emotions, and such an expression is to him the revelation of the contents of these other minds. By comparing the mental states of other men with his own, he comes to form some general notions of the contents of other minds and of the ways in which they act, thus arriving at the beginnings of a mental science. He may have done all this without ever having heard of the science of psychology. No one who has not done all this has arrived at the knowledge of the world proper to a human being of mature years, however unscientific. Of course, some do the work better than others, and arrive at a more accurate knowledge of the external world and of their own and of other minds. But done in some way it must be, unless healthy mental development be arrested. It is the normal man's way of looking at the world in which he finds himself.

That such a knowledge of things as that above described is less indefinite and rudimentary than that of the child in its earlier years is sufficiently evident. Minds have come to be distinguished from material things, and knowledge has become in itself an object of attention. And yet, as I have said above, it requires but little reflection to convince the plain man at this stage of his progress toward clear thinking, that there is still much in his experience which is very indefinitely and unsatisfactorily known. He speaks of an external world, but would be at a loss to describe, if asked to do so, just what he means by that phrase. The mind he distinguishes from the body, and yet when he is brought to ask himself what a mind is, and *how* he thinks of it, he realizes that his thought is vagueness incarnate. He probably makes a distinction between the mind and its ideas, but can give no intelligible account of the relation of the mind to these ideas; and although he feels sure that the mind knows things, he has not the faintest notion how it knows them.

From the inaccurate and indefinite knowledge of minds proper to the unscientific, one may take refuge in psychology; and for a more satisfactory knowledge of the external world one may turn to the various physical sciences. In entering upon the study of

these, the plain man does no great violence to the ways of thinking to which he has been accustomed. He does not change his whole point of view. He merely learns to do more accurately and carefully what he has done before, namely, to observe, compare, classify, and infer. He is still in a world of material things, in the one case, and in a world of minds which know things, in the other.

For instance, as a plain man, he has known plants and animals. He has observed them more or less narrowly, and he has some rather loosely generalized information regarding them. In becoming a botanist or a zoölogist, he collects his information more planfully and arranges it more critically. But he goes through no intellectual revolution in becoming a botanist or a zoölogist. As a plain man he knew something about plants and animals; as a scientist he knows much more; but his knowledge is of the same general nature. There, in the real world, are real objects which he is to examine and upon which he may experiment. The results obtained by the botanist and the zoölogist are sufficiently intelligible to him, even if he be a very poor scientist himself. They are expressed in a language of which he has always known at least the rudiments.

And the physiologist assumes, just as he has been in the habit of doing, an external world, in which are a number of organized bodies, forming a part of a real system of things. He seeks to obtain a general knowledge of the peculiar phenomena presented by these bodies, and to fix their relations to the rest of the system. Every one knows something about physiology, even if he has never heard the word pronounced. One's ignorance may be profound, but even in that case it differs from that of the physiologist only in degree. The point of view is essentially the same. Lungs are lungs, and exist and function in a real external world among other real things, and the only problem is to discover how they conduct themselves there. Physiological truths do not lead one away from the ways of thinking to which one is accustomed in common life. Physiology has to do with external things in an external world; it assumes that they can, under given conditions, be known; and it troubles itself little about the meaning of externality or the nature of knowledge.

It may here be objected that what has above been said of such sciences as botany, zoölogy, and physiology, can hardly be said

of certain other sciences, such as chemistry and physics; nor, indeed, of the sciences first mentioned, in so far as they may be based upon the latter. The chemist and the physicist seem to take leave of things as we know them, and to pass into a new and different world of things imperceptible to the senses. To the plain man the real external world consists of extended things which may be seen and touched. These things appear to be continuous; and, although they may be divided, the parts into which they may be divided are conceived as really parts, *i.e.* as fragments of the things, and as of the same general nature with them. But to the chemist and the physicist these realities have become appearances; not the things themselves, but phenomena under which the real things, themselves imperceptible, make their presence evident to the observer. Is this the world of things in which the plain man finds himself, and in which he lives and moves and has his being?

But a closer scrutiny reveals that, although the material world is to the man of science by no means the same thing that it is to the unscientific, yet it is a world of essentially the same nature, and it is not difficult for the plain man to understand the language in which it is explained to him. The atom, for example, is supposed to exist in space and to move about in space. It is not directly perceivable by sense, but it is conceived as though it and its motions were thus perceivable. Atoms are thought of as material things; it is assumed that they can be indirectly known; and no such questions are raised as those of the nature or possibility of knowledge, the nature of space, and what is meant by existence or reality.

There is much in the experience of the unlearned man that can make comprehensible to him the views of the nature of matter held by the chemist. He has long known that things consist of parts which are, at least under some circumstances, invisible. Every time that he approaches an object from a distance, it is made manifest to him that parts become visible which were not visible a moment before. The animated speck which crawls away before his eyes, he infers to be an insect, and to be as complicated as insects usually are. That he cannot discern its parts does not prevent him from believing that such exist. Nor is his belief arbitrary and ungrounded; it rests upon his experiences of things and the variations of things in his experi-

ence. Moreover, he has had abundant opportunity to remark the fact that what appears to the sense continuous when observed from a distance, may be recognized as presenting many a gap when seen from a nearer point. It is far from inconceivable to him that bodies which seem continuous should really be composed of atoms separated by considerable intervals. Finally, the thought that different combinations of atoms should exhibit different properties does not strike him as surprising. He who has brewed a bowl of punch, or looked on at the manufacture of a pudding, has observed that things in combination do not have the same properties as the same things taken separately, and he can readily generalize this experience so as to make it cover cases which have not yet fallen within his experience, and even cases which can never enter his experience directly, but for the reality of which he has credible evidence of some sort. The plain man has already reasoned as do the chemist and the physicist, but he has not carried his reasonings so far, nor has he been as accurate and systematic. Had he not had such experiences as I have described, the doctrine of molecules and atoms would strike him as incomprehensible; and, indeed, had the man of science not had such experiences, he would never have framed the hypothesis in question. There would have been lacking the basis demanded by scientific hypotheses, the foundation in experienced fact without which they can have no sort of significance.

The truth that the man of science occupies essentially the same standpoint as the plain man may be illustrated, not merely by a reference to those sciences which have to do directly with existing things, whether they be regarded as perceptible or as imperceptible to the senses; it may be illustrated by a reference to the abstract sciences as well. Some mathematical knowledge is possessed by every civilized man who is not intellectually deficient. He can count things, add and subtract, multiply and divide. These same things are done by the mathematician, and, with the aid of an ingenious system of symbols, are done in a very complicated way. The plain man reflects but little upon the nature of numbers; his aim is to use them. The relativity of number he has learned at a very early age; he knows that the same bit of wood may be both a yard long and three feet long, and that one dozen is the equivalent of twelve units. But it does not occur to him to ask himself precisely what happens in his

mind when it conceives of something as a unit. The science of arithmetic does not, or at least it need not, trouble itself about such matters a whit more than he. We all know, in a certain dim, unanalytic way, what we mean by a unit and by the successive addition of units. We know what it is to grasp together as a whole a number of individuals, to separate a whole into its constituent parts, and to compare two wholes and find them equal or unequal. The arithmetician may assume this knowledge to be present in the mind of the man whom he undertakes to instruct; and may, proceeding upon this basis, show him how to repeat in more and more complicated ways, operations which, in a simple form, he has been accustomed to perform from his very childhood. If the pupil desires, not so much to perform the operations in question, as rather to pry curiously into their ultimate nature, he may be referred to the psychologist, the logician, or the metaphysician. The arithmetician is in no way bound to answer questions touching such topics as these.

The same thing is true in geometry. Every man has some notion of what is meant by a point, a line, a surface, and a solid, however abortive may prove his attempts at definition. He knows that even a very small surface is not to be confounded with a point, and that a narrow strip of surface is not a line. He is willing to affirm with confidence that the thinnest sheet of ice has two faces, and not one only. The axioms assumed by the geometrician appear to him reasonable, because he seems to find them verified in his experience; and, indeed, he seems to himself always to have known them, although it would not have occurred to him to state them in that general form. He can see that a straight line is shorter than a crooked one joining two points. When he contemplates a triangle before him, he sees, and he was able to see before he studied the mathematics, that the sum of the three internal angles is greater than any one or any two of those angles taken alone. The exact determination of the sum of the three angles, and, in general, the exact determination of any geometrical relations save the very simplest, can only come when he has had the proper schooling; although individuals may differ rather widely in their conception of the proper meaning to be given to the phrase, "the very simplest relations," and some may be able to see at a glance what others can only be brought to see with a good deal of assistance.

There is, then, no absolute line dividing the geometrical knowledge possessed by all normal minds from that possessed by the geometrician. The knowledge of the latter is more exact, more exactly expressed, and it covers a far wider field, since it is possible by the aid of scientific methods to perceive a multitude of relations which it is beyond the power of the untutored mind to grasp. But the fundamental notions of geometry are taken from common experience, and the world of space and of things in space remains essentially the same, after one has become familiar with geometrical reasonings, that it was before. The geometrician is under no obligations to ask himself how it is possible for the mind to know extended things, to enter into speculations regarding the nature of space, or even to attempt to solve the contradictions which seem to stare him in the face when he reflects upon the continuousness of space and the possibility of its infinite divisibility. All these problems remain, and call for a solution, after the geometrician has done his work. But there is no good reason why they should be laid upon the shoulders of the mathematician, nor does it seem that they can be solved by the employment of the methods which he is accustomed to use in his work.

If we turn from such sciences as we have been discussing to the science of psychology, we find that the case is in no wise different. We have seen that a certain amount of psychological knowledge is possessed by the plain man before he has made any attempt at scientific accuracy, but we have also seen that his knowledge of the mind cannot but be fragmentary and indefinite, unsystematic and unsatisfactory. It must differ from that possessed by the psychologist somewhat as the knowledge of plants common to intelligent persons who take an interest in them differs from the knowledge of the botanist, or as the mathematical knowledge of common life differs from that of the mathematician. The difference is here, as in the other cases, a difference rather of degree than of kind.

This may be clearly seen from the descriptions given, in the handbooks of psychology, of the way in which the plain man has attained to the psychological knowledge which he enjoys. We there find that the subject of our discussion has had recourse to introspection, that he has made use of the objective method, and that he has not confined himself to mere observation, but has sometimes experimented. Experience of his own conscious states

has given him the key which is to make significant the expressions and actions of other men and of the brutes. He has certainly observed these expressions and actions, and has framed a more general notion of mind than he could have done by a mere examination of his own mental processes. And every time that he has sought by persuasion, or by any other means, to produce a given mental state in another, he has employed experiment, as does the *galopin* who rides on the back platform of the bob-tailed car, at a personal inconvenience to himself, with the avowed purpose of getting the driver "wild." Of course, such introspection as he has attempted has been blind and instinctive; his observation has been loose and inaccurate; his experiments were undertaken for no scientific purpose, and some of them sin in all sorts of ways against the canons of scientific experiment. Nevertheless, they remain introspection, observation, and experiment. The difference between the plain man and the psychologist does not lie in the fact that the latter uses any method peculiar to himself, esoteric and above the comprehension of the unlearned. It is simply a case of the difference everywhere found between the scientific and the unscientific, between the man who applies methods carefully and seeks accurate and exhaustive knowledge of a subject, and the man who feels his way blindly, going only so far as he is compelled to go by immediate practical needs. The knowledge of mind gained by the plain man is loose and vague, more or less inconsistent, and very limited in extent. Yet it is, as far as it goes, a knowledge of mind, not different in kind from that of the psychologist, and obtained in the same way.

Now that psychology is emerging from that ill-defined medley which has passed by the name of philosophy, and is taking its place as a distinct discipline, it is gradually coming to be accepted that the psychologist must occupy much the same standpoint as the ordinary man. I do not, of course, mean that he must be as loose and careless in his thinking, but merely that he must be scientific rather than metaphysical, accepting without question the assumptions upon which the natural sciences rest, and investigating the phenomena of mind as they investigate material phenomena.

It is only necessary to compare the psychology of a generation or two ago with that of the present day, to see how strong is the current which sets for psychology as natural science. The change is both natural and necessary; it is only another instance of the

division of labor which always follows the successful exploitation of the various fields of investigation, and of which the history of science furnishes so many instances. It is coming to be seen that the psychologist, like the student of the physical sciences, may legitimately restrict the scope of his investigations; that he may refuse to attempt the solution even of problems which naturally suggest themselves to one laboring in that particular field, if it is not necessary to solve them in the attainment of the definite ends which the psychologist sets out to reach. There seems the more reason for his position when it is seen that the problems referred to — which may, as a class, be termed epistemological or metaphysical — cannot be solved without an apparent repudiation, certainly without a thorough analysis and revision, of those assumptions upon the basis of which psychological investigations more and more commonly, and very conveniently, proceed.

In harmony with this position the psychologist assumes an external real world, the world of matter and motion. In this world there are organized bodies presenting certain peculiar phenomena which he regards as indications of mental action. He accepts a plurality of minds distinct from each other and from the system of material things, each standing in a peculiar and intimate relation to one body. Each mind knows directly its own states, and knows everything else by inference from those states, receiving messages along certain bodily channels and reacting along others. Upon this basis he strives to give an accurate account of the contents of minds and to trace the history of their development. He stands upon the same ground as the ordinary man, and, as has been said above, he follows the same methods in his investigations, making use of introspection, observation, and experiment. He applies the methods in a broader and more scientific way; he is clearer, and more exact and thorough; but he remains a student of "natural science." However he may modify, as a result of his studies, his views of minds and of their relation to a material world, he still holds to the existence of distinct individual minds in certain relations to such a world and through that to each other. He conceives each as shut up to its representations of things, and dependent upon messages conveyed to it from without, as does the disciple of Locke. Ideas are, to him, like images in a mirror, numerically distinct from the things which they represent, and of which they give information.

In all this there is a distinct advance upon the knowledge of minds possessed by the unscientific. Not only does the careful and systematic application of the methods of investigation result in a much larger, better established, and better arranged mass of information, but the clear statement of the assumptions upon which the science rests is an important gain. Somewhat as the knowledge of the child differs from that of the man does the knowledge of the plain man differ from that of the psychologist. The distinction between the self and the external world which exists vaguely in the childish mind has grown more definite in the mature mind, indefinite as it may be even there. In the mind of the psychologist such distinctions have attained a still greater degree of definiteness.

For example, whereas the child scarcely thought about his ideas of things at all, or distinguished between his mind and his body, or the minds and bodies of others, to the man these distinctions have become familiar. He now regards his ideas of things as distinct from things, and as, in a sense, representative of things. He knows that he may have false ideas of things, and that it is quite possible for the idea and the thing to be very different. He knows that ideas come to him through the avenues of the senses, and that disturbances of the sense may cause a modification of the idea, while the temporary or permanent closing of the avenue causes the temporary or permanent loss of the corresponding set of messages from the outer world. He regards his ideas as in his mind, and he is very apt to look upon his mind as, not merely related to, but *in* his body — preferably in his head. Moreover, he distinguishes vaguely between himself, a something he can scarcely even attempt to define, and the ideas of which he is conscious. But he does not confound this self with the body, or with any external thing. He has thus arrived at a consciousness of two worlds rather strongly contrasted, an inner and an outer ; nor is his state of mind to be confused with the far more indefinite state of the childish mind. Certain distinctions, before merely implicit, have emerged into the foreground of consciousness.

But it is to be remarked that, although the plain man distinguishes between his ideas of things and the things which they represent, he is guilty of an inconsistency in vaguely believing that he somehow knows external things directly, and not merely through his ideas. He is quite ready, it is true, to assent to the

general statement that he and others may have false ideas, and may sometimes be deceived about things. He may have experienced hallucinations, he has certainly had dreams, and he has noticed that the same object may look and feel differently when presented to the sense in different ways. It is because he has had these and certain other experiences that he is impelled to make the distinction between external things and our representative ideas of them. But he has not reflected sufficiently upon such experiences; and when he stands in front of an object, within a reasonable distance of it, it does not occur to him to regard the object as merely an external cause of an internal experience — which may, theoretically at least, be a false and misleading experience. He is confident that he directly knows the object out there before him, and the intervention of a representative is overlooked.

Here the psychologist is more thoroughgoing. He, too, distinguishes between external things and our ideas of them, making the ideas representative of the objects. But he realizes that, when he has done this, he must not again confound the objects and their representatives, and thus lose the distinction which he has drawn. He insists that the external world of things must in every instance be regarded as numerically distinct from the copies of it built up in individual minds; and that, consequently, all his own experiences, however vividly they may seem to give him immediate knowledge of external things, are nevertheless merely representatives of the things in question. In other words, the psychologist admits that the objects of which he is immediately conscious, and which by the plain man are assumed to be external things, are not really constituent parts of the external world, but are, so to speak, duplicates of these, which exist in the mind itself, and merely stand for what is external.

The plain man who looks at an object before him and feels impelled to believe that he is directly conscious of the thing out there in space, may be thrown into perplexity by the very simple experiment of pressing gently upon the side of one of his eyeballs. The object seen is at once doubled. It is fair to ask him whether both of these things seen are the real object, or, if not, whether the one has any better claim to that title than the other. If he does not see the real object when his eyes are tampered with, but sees only images, he may well ask himself whether what he saw before was the real object, or merely an

image of it. The psychologist solves such problems by declaring all the objects of which we are immediately conscious to be mere representatives of what is without, but maintains that the representatives obtained through the sense-organs, under certain normal conditions, give truer information regarding the world beyond than those gained under other conditions. It is of course incumbent upon him to support this position by evidence, and evidence of a kind he can undoubtedly furnish.

But there is still another way in which the psychologist's view of the mind differs, or ought to differ, from that of the unscientific. The latter has gotten so far as to recognize the existence of ideas, of conscious states, and to distinguish them from external objects, as we have seen. But he believes vaguely in the existence of a *self*, which is distinct from any or all of its conscious states, which in some sense underlies them, or has them, and which is the agent in knowing, feeling, and willing. How this self or "I" knows or acts, he does not pretend to say; even what it is, he cannot make intelligible to himself or to others; but he believes *that* it is, and that it should not be confounded with the things which it knows or upon which it exercises its activity. There is, of course, some danger of injustice in attributing to a man beliefs which have never emerged in his mind to any degree of clearness and definiteness, but it seems safe to say that the plain man believes, vaguely and indefinitely, in the sort of a self indicated above. He thinks that he is conscious of something of the kind, and the language which we have all inherited and daily employ is well adapted to foster such a belief. We say: "I think," "I feel," "I will," and the "I" in our thought vaguely stands for a something different from all mental states whatever. It is a something big with mystery and possible misconception.

To the psychologist, however, a mind is, or should be, nothing more than a transcript of the external world supplemented by certain conscious states not supposed to have their prototypes without, feelings of pleasure, pain, etc. If we use the word "idea" to cover broadly all those things, which, according to the less scientific view, the mind "has," we may say that the psychologist should regard the mind as wholly composed of ideas, and should regard his task as accomplished when he has satisfactorily analyzed and arranged these. A mind is, of course, a very complex little world, and the phenomena it presents are by no means easy to

analyze and classify. Some things in it seem to stand out clearly; some remain, after our best efforts, dim and vague. It is quite conceivable that certain things, commonly supposed to have their being in such a world, should turn out, upon investigation, to be mere chimeras. It is not difficult, in the obscurity which still covers much of our mental life, to confound one thing with another, to create a phantasm, or to seek diligently for the solution of a problem which should never have been proposed for solution. These truths the psychologist should acknowledge ; and the difficulties of his task should not lead him to jump to unintelligible or merely tautological explanations of obscure mental phenomena, nor despair of analyzing into its elements what has heretofore resisted his efforts at analysis. He need not deny the consciousness of self experienced by the plain man and the psychologist alike ; but he may legitimately expect to find it, when subjected to careful examination, a mental state, not wholly different from other mental states, and containing nothing hopelessly mysterious. He simply abandons his task when he introduces obscure metaphysical notions to piece out his incomplete psychological knowledge ; and in so far as he does this, he must renounce the claim to be, in any just sense of the word, a man of science.

I have said that the psychologist does, or *should*, regard minds as consisting wholly of conscious states, and it has been necessary to speak thus guardedly because there are still not a few psychologists who cling to an older and a less scientific way of regarding the mind. But the scope and methods of the science of psychology are coming to be more and more definitely limited ; and to my mind, at least, there is little doubt that the psychologist of the future will regard it as a work of supererogation to enter upon the discussion of the nature or functions of any self, or ego, or "knower" which cannot be resolved into a complex of mental elements. That the current is running in this direction appears to be abundantly evident. As I purpose somewhat later to revert to this topic, and give definite reasons why the psychologist should abandon the older view, I shall say no more upon the subject at present.

From the foregoing, it is plain that the differences between the knowledge of minds common to all intelligent persons and that peculiar to the student of psychology, are sufficiently important. But it is also clear that a recourse to psychology

will not solve all the problems which arise out of the experience of things which we all possess. The psychologist describes the development of a consciousness, and endeavors to give an accurate account of its contents; but he assumes, as does every student of natural science, the existence of a world of material things in relation to our mental states. He may tell us how we come to build up a mental image of a system of extended things, but he is no more bound to tell us what is the ultimate nature of space than is the physicist. He pictures the development of a consciousness in time, and he tries to explain how we come to form the notion of time, but we have no right to ask him what time is, or whether it is in itself subjective or objective. His work touches much more closely, it is true, such problems as these, than does the work of the physicist; we feel impelled to ask him his opinion upon such points at many stages of his progress. But he has a right to refuse us an answer, on the ground that he is prosecuting studies in a natural science, that his science rests, like others, upon assumptions which may be further analyzed, but that it is more convenient to refer the carrying out of such analyses to a special discipline, which is similarly related to many sciences. As a psychologist, he is justified in putting such things aside, and in remaining upon the plane of the common understanding, the plane of natural science.

There is, of course, much that is vague in the thinking of the man who rests wholly on the plane of natural science. The physicist may have no very clear notion of all that he means by matter and energy, and yet he may be a good physicist. He may experiment with ingenuity, and observe and record phenomena with accuracy. And the psychologist may have the vaguest of notions as to the whole connotation of the word "mind," or of the phrase "a material world," and yet he may be a good psychologist and materially add to our knowledge of minds. If he has not carried on with some measure of success the sort of reflective thinking demanded in metaphysics, he will probably mix from time to time with his psychology more or less crude material that is not strictly psychological. But this is on his part a work of supererogation. He has the right, as has the physicist, to work in his own field, and to make use of some concepts which he has not completely analyzed.

CHAPTER II

THE INADEQUACY OF THE PSYCHOLOGICAL STANDPOINT

It is easily apparent that the position taken by the plain man and by the psychologist touching the relation of minds to an external world calls for further criticism, and cannot be regarded as final except within the field of psychology. It is, indeed, a convenient fiction, and must not be accepted as though it were a literal statement of the truth. Upon examination it turns out, when taken literally, to be flatly self-contradictory, and thus to annihilate itself. And since this position is natural to all men, so long as their thinking remains upon the plane of the common understanding, and the need of subjecting it to further criticism is evident only to the few who have made some progress in reflective thought, it is well worth while to spend a little time in the examination of the psychological standpoint, and to make the above-mentioned contradiction stand out with distinctness.

We have seen that this view of the mind and the world assumes that each mind has only its representative images of things, and cannot directly attain to the things themselves. When it asks how a given mind comes to have a knowledge of an external thing, it concerns itself with the messages that have been conveyed to the mind by means of the bodily senses — with the materials, so to speak, out of which the image has been built up. It describes in detail the process of building up such an image, and distinguishing sharply between the image and the corresponding thing, it maintains that the mind knows only so much about the thing as is contained in this image and in other images obtained in a similar way. It admits that, given an image in the absence of the thing (an hallucination), the mind will have absolutely no way of knowing the thing to be absent except by referring to its other experiences and assuming this one, as abnormal, to be a false representative, and without a corresponding reality behind it. In other words, it shuts the mind up

to its own circle of consciousness, and makes the external world present to it only by proxy. The outer world, *as the mind immediately knows it*, is a complex mental experience, built up out of mental elements, and not the real outer world at all. Thus the very idea "outer" is, to the mind possessing it, only a something in consciousness — an inner representative of genuine externality. It is not a real "outer," but merely its image.

Let us try by the aid of an illustration to get a clear notion of this view of the mind. Let us imagine a man imprisoned in a doorless and windowless cell, whose heavy walls shut out every aspect of the luminous and resonant world without. He has always been thus a prisoner, in solitude and darkness, and in a silence broken only by the click of the telegraphic key which is the sole avenue by which messages may arrive from the unknown beyond the walls which encompass him. He can grope his way about his cell, and has, hence, some experience of space and of things in space. He can make sounds which he can himself hear. And he has, in addition, the series of sounds mentioned as produced independently of him, and constituting messages from another world. To such elements is his experience limited.

What sort of a world can he build up out of such experiences, and how must he proceed in its construction? It is evident that he is not in the position of one who has thus been imprisoned after having enjoyed an extended experience of things as they appear to those who walk abroad. He is not possessed of the secret which makes a message at once recognizable as a message, and turns a series of meaningless sounds into a wealth of information regarding, not sounds merely, but also a variety of other things which bear little resemblance to them. It requires a certain amount of information to be able to recognize that a given experience is a representative of something beyond itself; a message does not announce itself as such under all circumstances; and one may gaze long upon the cross-section of a bit of cord without being able to guess, from that single experience taken by itself, what manner of thing it is to which this little plane surface belongs, or, indeed, whether it belongs to anything at all. One cannot have the least idea that a succession of sounds is a message, and has come from without, so long as one knows absolutely nothing about it save that it is found within. The Prisoners in the Den, which Plato has

described for us, could not know the shadows upon which their eyes were fixed to be shadows, so long as they had no experience of real things with which to contrast them.

Thus our prisoner must build up the world of his knowledge out of such experiences as he actually possesses, and we must be careful, in picturing his condition, not to attribute to him possibilities which can arise only out of the possession of the larger experience which we ourselves possess. He has some knowledge of space and of things in space, and it is conceivable that, by what would be to him a bold flight of the constructive imagination, he might imagine, and perhaps come to believe in the reality of, a much larger material world than that with which he is immediately familiar. He could conceive the theoretic possibility of his passing the barriers which hem him in, and of finding other real things of the same general nature as the things he knows. In doing this he would be doing what we all do when we speculate regarding the possibility of a boundless material universe, or create in imagination an unseen world of atoms and molecules in relation to the world of things we immediately perceive. And having perceived that sounds made to originate in one part of his cell could be heard in another part, and that sounds may give some indication of the nature of the occurrence that brings them into being, he might even come to refer those sounds, for which he was not himself responsible, to imagined occurrences in the outer world which he had conceived, and recognize them as in a certain sense messages.

How far human ingenuity could go in building up, upon so slender a basis of experienced fact, an idea of an outer world bearing a resemblance to the real outer world which surrounds our prisoner, it is perhaps hardly profitable to attempt to guess. That human ingenuity may do much in extending the limits of knowledge beyond the confines of the immediately perceptible, all who have some acquaintance with the results attained by science must admit. But certain things should be carefully noted : —

In the first place, it is clear that the subject of our illustration must find in his own actual experiences some sort of justification for the transition to an unseen world which he now conceives as beyond them. He must reason by analogy, passing from like to like, from a limited to a possible wider experience not dissimilar from the former. Did he not find in his experience some fact

which could best be explained by the assumption of such a world — I mean really explained, as facts are explained within his experience — the larger world would remain to him, if he framed the conception of it at all, a mere dream. It could not be a legitimate object of belief.

In the second place, it is clear that the larger world arrived at by inference cannot contain any element not present in some form in the little world of the experiences which we are supposing to be actually present. The man who has come to believe in it has not created a new world, he has merely extended in thought the world in which he finds himself. Had he not already an experience of space and of things in space, did he not know by actual experience what is meant by spaces, he would not have the elements which, fitted together, constitute his idea of a larger world. Thus we see that the larger world of which we are now speaking cannot possibly be a world of colors. No triumph of ingenuity can transport our captive within "the borders of light." However he may exercise his ingenuity to enlarge the world in which he is condemned to live, it must remain forever a world of essentially the same character. How could he possibly so put together experiences of sound or of touch as to make them truly representative, not of other sounds or touches, or combinations of such, but of a something so diverse as colors? Here we find a gulf, which must remain forever impassable, a gulf which he cannot even recognize as a gulf, for there is to him nothing at all in that direction, not even a void — there is, indeed, not so much as a direction, there is nothing.

Now the isolation of the mind, as conceived by the psychologist, is far more complete than that of the hypothetical inhabitant of the cell. It is, in fact, cut off from the external world as a whole, as our prisoner is cut off from the world of colors. There is simply no bridge leading from the inner world to the outer. That this is not an extreme statement of the case it needs only a moment's reflection to reveal; although the fact appears at first sight to be contradicted by the existence of the several avenues of sense, furnishing to the mind a mass of information of a very varied nature. One is tempted to picture the mind, not as imprisoned in a gloomy cell, and laboriously working out for itself, by the aid of analogical reasoning, a hypothetic world, which constitutes a somewhat shadowy continuation of the world

of immediately experienced fact; but rather as the inhabitant of a fair mansion well provided with windows on every side, and as being able to gaze freely upon a varied and extended landscape.

But this impulse is checked at once by the thought of what the psychologist's position really implies. The mind is, he teaches, quite shut up, so far as its immediate knowledge goes, to its own ideas; and though it may *think of* an external world, it is wholly impossible that it should look out of the windows and into the world beyond, at any moment of its existence. That there are such things as windows it can only know by inference; the windows are not immediately perceived. Nothing is immediately perceived save sensations and other mental elements, which we may indicate by the use of the term "idea." The fact that these elements are of diverse sorts, and that they may be built up into complex constructions, does not in itself prove that they are something representative of a world without, and that they furnish some sort of a picture of such a world. A complex of ideas is, after all, only a complex of ideas; and the belief that there is in existence anything beyond the ideas and their actual and possible combinations, should, if it is to be a rational belief, be founded upon some sort of evidence.

Such evidence would be furnished, if, for example, a mind could have immediate knowledge of some external occurrence resulting in a stimulation of one of the bodily organs of sense, could have similar knowledge of this bodily organ and its condition of stimulation, and could perceive a conscious sensation to be the effect of such external occurrences. Given such an experience, there would be at least a starting-point for further reasonings. Sensations not thus perceived to be the result of external happenings could be inferred to be such. And a direct comparison of things external and internal in a few instances might furnish material for a general theory regarding the relations existing between the two worlds, and the similarity or diversity of nature obtaining between them. Could one from time to time apply an observant eye to the peep-hole in the curtain which separates the stage, upon which our conscious life enacts its drama, from the theatre of the larger world beyond, even fugitive glimpses would serve to show that the stage is but a limited part of a larger whole, and stands in relation to the rest. But such a glimpse of the external world the psychologist

denies us, as he must, when he has once made and carried out with impartial thoroughness the distinction between ideas and the things for which they stand, mental representatives and the realities which they are supposed to represent.

Yet even where all direct knowledge of the external world is denied, it is conceivable that a mind might, under certain conditions, obtain some knowledge of an external world of a certain sort. It is, however, very important to remark these conditions, and to remark also the sort of an external world that could be reached. We have seen that the man in the cell could conceivably extend his knowledge beyond the world of his cell, by reasoning in a legitimate way upon a basis of experienced fact. But we have seen also that the outer world must be for him a continuation and extension of the world he knows, not something quite different in kind. It must be something really capable of representation by elements actually given in his experience, and what is not thus given, even in its elements, cannot be for him an outer world at all.

The same thing is true in the present instance. If, for example, we conceive of a mind as occupying a certain portion of space, as containing ideas which are extended things — not mere non-extended representatives of extended things, but really extended — then it is quite conceivable that a mind may, standing upon a basis of actual experience, represent to itself, in some intelligible sense of those words, an external world lying beyond itself. It knows what extension means; it knows what it means when it speaks of things as beyond each other. It can, by a mental construction, conceive symbolically, as we always do conceive symbolically, immense spaces not given in any immediate experience. But the external world thus conceived would not be a world of a wholly new and different kind from that directly known. It would be, as was the outer world of the man in the cell, a continuation of the little world directly perceived. It goes without saying that such a world must not be a merely gratuitous assumption. There must be some good reason for believing it to exist, or the belief has no justification. Moreover, the justification must be found within the little world which serves as the sole basis for the whole construction.

Now it is of the first importance to remark that no such conditions as the one adduced are fulfilled in the conception of

the mind furnished us by the psychologist. He does not conceive of the mind as occupying a small portion of space, and as passing in its knowledge beyond the limits of that portion in the manner described. He does not mean by an external world a mere continuation of the internal world, and a world of the same general character. Such a continuation of the world of ideas would give us only a more extended circle of ideas, not a world of things supposed to differ in kind from ideas of whatever sort. The psychologist usually tells us, for example, that the inner world exists only in time, while the outer world exists both in time and in space. In other words, nothing within the mind is extended, but material things do possess this property. But if this be so, it is fair to ask, How can the mind find even a starting-point from which it may represent to itself in any way a world of extended things? It may build together into a system the ideas that it has; it may observe their connections and the order in which they succeed each other; it may even look forward with confidence to experiencing in a different way ideas which it has not as yet experienced except as images in the imagination; it may thus extend the world of its experiences by believing in the possibility of further experiences. But in all this there is not the least justification for passing from a world of actual or possible experiences to a something of a quite different kind. For such a procedure there is not that first foundation in experience without which the whole fabric of one's reasoning must, in every case, become as unsubstantial as a city in the clouds.

Moreover, since there is in the circle of ideas no element which can, in an intelligible sense of the word, represent an extended thing, there is not only no justification for an extension of knowledge to a realm beyond consciousness, but there is not even the possibility of framing the least conception of what such an extension may mean. The man in the cell may, in imagination, extend the little world of the things which he knows beyond the limits given in his experience, though he may doubt whether he is justified in believing in the existence of such an outer world. Still, he at least means something when he conceives it. His mind is not a mere blank. But if his experience furnished him with no knowledge of extension whatever, he would be as unable even to think of such an outer world as he is now to conceive the world of

light and colors. Thus it is with the hypothetical mind of the psychologist. It cannot even conceive the possibility of an "outer" world which is not really an "inner," a mere distinction within the circle of its ideas. Not only is there no justification for an advance, but there is not even a direction in which there may be an advance. There is not a limit, as we ordinarily conceive of a limit; there is simply nothing. And what has been said of extension may be said of any other quality attributed to the outer world which is wholly denied to the inner. There is no conceivable way in which a knowledge of it may be attained by a mind circumstanced as is the one we have been picturing. For such a mind it is inconceivable that the external world should exist at all.

Such must be the condition of a mind shut up to an immediate knowledge of its own ideas solely. Its images of things cannot be to it images giving information regarding things beyond them. They must themselves be things; the only things it knows, unless we include other things of the same kind, reached by an inference from these, in the manner indicated above. In contemplating its condition of complete insulation, we are struck by the oddity of the fact that this whole doctrine rests upon reasonings in which it is assumed that the mind is *not* shut up to its own experiences, but directly knows an external world of things. The contradiction is palpable and unmistakable; between premises and conclusion there is an abyss which may be concealed by obscurity and confusion of thought, but which cannot be bridged by any legitimate procedure. The argument supposed to yield the conclusion in question may be set forth briefly as follows: —

A man looks at his own body, the body of his neighbor, and some material object, in front of which both are standing, and he seems to himself to be immediately conscious of all three. He grants his neighbor a knowledge of the object, reasoning as I have indicated in the chapter preceding, and distinguishes between this man's knowledge of the object and the object itself. The former he makes a representative of the latter, connects it in thought with the man's brain, and admits that it may even not wholly resemble the object as he sees it. He holds that the man is not directly conscious of the object itself, but infers it through the representative image. He then applies the same reasoning to himself, and concludes that he is himself not really conscious of

the three objects with which he started, but only of representative images. Through such images he must infer the whole outer world — his own body, other men, other things.

But if he is not really conscious of his own body, the other man's body, and the real object, what becomes of his reasoning? Of what is the other man's image representative, and with what is it connected? Is it representative of an external object? The object which it has been assumed to represent is now seen to be an image in his own consciousness, and there is not a shadow of evidence that it represents any other. With what brain is it connected? The brain belonging to that body which is under observation? That body, too, is now seen to be his own image, and is relegated to consciousness. And what do his own images represent, and where are they? His image of the object cannot represent that object seen out there in front of his body. That object *is* his image, if he is shut up to images, and his body as perceived is another image in his consciousness with the object. The real object, the real body, are things to be inferred. They are not open to direct inspection. His image of the thing must not be referred to the brain, which belongs to the body of whose existence he is directly aware. It must be referred to a brain in a totally different world. Where look for evidence that it is connected with any such brain in any such body? Yet evidence must be adduced for all this. The doctrine that there is an external world, and that it is mirrored by a number of minds which are shut up to their own representations of it, is not usually advanced as a gratuitous fiction. It is supposed to rest upon evidence. Is not one conscious of one's own mental experiences? Can one not observe the relations of these to the material world? Can one not arrive by analogical reasoning at some notion of the mental states of others, and apply one's results to one's self? The appeal is to experience, to observation, and induction. And yet, if the conclusion of the argument be true, the foundation upon which it rests is a delusion. If one be really shut up to one's own mental states, one has never observed their relations to material things, and never inferred from changes in material things the mental states of another. It is a strange argument that rests upon an assumption which its conclusion declares to be false.

The difficulty here pointed out is not assumed gratuitously. It is really inseparable from the psychological position both of the

plain man and of the psychologist, though it is forced into greater prominence by the superior consistency and clearness of the latter. The plain man distinguishes, in his loose fashion, between a man's ideas of things and the things themselves, and he admits that if the ideas are not true representatives, their possessor will not truly know the things. The psychologist makes more distinct the line of separation, and conceives the man's whole experience of an outer world to be a mere copy of what is external, describing in detail the elements of which it is built up, and the process of its formation. Both hold, explicitly or implicitly, that we perceive directly the outer world, and that we do not so perceive it, but only infer it. The contradiction is there. It is embedded in the very structure of the psychological position, the standpoint of common thought and of natural science. Psychology is not called upon to solve it, for it does not concern psychology. The psychologist has done and still does excellent work while simply disregarding it. It may safely be left to the metaphysician.

And the metaphysician, if he be wise, will not quarrel with the psychological standpoint. He will recognize its value as a basis for work of a certain kind, and he will object to the psychologist's mixing with his psychology reasonings which, however true and valuable in themselves, serve only to darken counsel when mingled injudiciously with other things. He may, as metaphysician, point out where the difficulty really lies, show why the psychologist's assumption need not lead to error, and indicate how the results obtained by him are true even for metaphysics, when restated in certain ways. But he will regard such discussions as more or less out of place in a text-book of psychology, and will regret finding them there, much as he would regret finding metaphysical reflections introduced to any great extent in a treatise on physics.

To what has been advanced in the pages preceding, exception may be taken in two very different ways. It may be claimed, on the one hand, that the psychologist need not take, even provisionally, so untenable and inconsistent a position as the one described, but may restate his facts at the outset, rejecting what is untrue or misleading, as the metaphysician proposes to do. On the other hand, one may hold to the psychological standpoint in a somewhat modified form, and attempt to remove the contradiction by declar-

ing that both the ideas and the things they represent are directly given in perception.

The first of these objections has already received an answer in the last chapter. I have there tried to show that the natural man finds himself in a world of things, and distinguishes between those things and his ideas of them. That he is not consistent and thoroughgoing in carrying out this distinction has been pointed out, and it has been shown that the psychologist goes further in this direction than he does. But it has been insisted that, however psychology may improve upon the thinking of the natural man, it must, if it is to remain a natural science, remain upon the plane of the common understanding, accepting the standpoint of the natural man, a standpoint accepted by the natural sciences generally, and must avoid passing over to the sort of thinking which has by common consent come to be distinguished as metaphysical or epistemological. The two kinds of thinking are by no means the same, and one who does very good work upon the plane of natural science may still be incapable of doing good work of the latter kind, unless he has some degree of aptitude and has enjoyed some special training — a fact not infrequently overlooked, and sometimes with disastrous consequences.

That the psychological view of the mind and the external world appeals to the common understanding as a natural one, must be evident to any one who has had the task of introducing classes of students to an acquaintance with the mental sciences. The distinction between ideas and the things they represent, the limiting the direct knowledge of the mind to the circle of its ideas, the description of the building up of a mental picture of an external world by the fitting together of the messages received from without — all this they find quite comprehensible and not incredible. It is only when they are asked to dissolve the very foundations of the world of ideas and things, with which they are uncritically familiar, by entering upon a metaphysical analysis which refuses to recognize such a view of things as ultimate, that they draw back in dismay. It is difficult for them to attain any intelligent comprehension of the new point of view. And this is equally true of those who are accustomed to work at all exclusively in any of the natural sciences. It is easy to see, when they make an excursion into philosophy, as they sometimes do, that they find it very hard not to carry over with them the assumptions upon which

their work has proceeded in their own field. They are apt to remain psychologists when they think they have become philosophers. They cannot shake off the old ways of thinking.

Since this is so, and since psychology can express its truths without recasting them from the standpoint of the metaphysician, it is surely wiser for the psychologist to pursue his investigations as do the workers in other natural sciences. Much modern psychological work is done in this way, and I can see no good reason why all should not be. The psychologist should accept without question an external world; should assume that his own ideas of things represent it, and can be proved by observation to represent it truly; should infer from the actions of other bodies ideas more or less like his own, which are representatives of external things as are his ideas. He should then, in harmony with the psychological fiction that no one is directly conscious of external real things, assume that each mind is shut up to its own representations; that the world is mirrored in each consciousness, and that the pictures of it in different minds may differ. To him each mind's knowledge of the external world should mean the presence in it of such a picture — of such and such mental elements arranged in such and such ways. He can then set before himself the difficult but perfectly definite task of discovering just the elements present in a consciousness, and the method of their arrangement. He may describe the building up of a consciousness, and may relate everything in it to the system of real things in an intelligible way. His work is, in a real sense of the word, scientific, and resembles closely what scientific men are trying to do in other fields. It does not demand metaphysical reflection. The best results are to be obtained in psychology, I feel sure, by holding firmly to this scientific standpoint.

It is true that this position is not taken by all psychologists, or even by all psychologists who give abundant evidence that they are deeply influenced in much of their work by the spirit and the methods of modern scientific investigation. Such men may object, as some do object, that in starting with such a view of the mind we are starting with a rather complicated theory, and not merely with a number of observed facts. A science, they may maintain, should result in a theory, not begin with one. The objection seems plausible, but I think it is sufficiently answered by saying that, in accepting the psychological standpoint, we are

starting with what appear to the normal mind, untrained in metaphysical reflection, to be facts, and deserving of acceptance as such ; that until one has made some progress in the investigation of these, it is not clear what one should accept as ultimately true and what one should reject as misconception ; and that, here as everywhere, that method of investigation is the best which accomplishes the best results with the minimum expenditure of energy.

It is quite true that the man who recognizes a sensation as a sensation, with all that that implies, is not performing the relatively simple operation of *being conscious* of that sensational content, abstracted from all else. He is really relating this content to the system of his experiences in rather a complicated way. But men perform such operations long before they have heard of psychology, and in building up the system of relatively exact knowledge which we call a special science, it is not necessary to begin at the very beginning. We may presuppose a certain amount of knowledge on the part of those to whom we speak and for whom we write. If every science had to justify all its assumptions before it proceeded with its special investigations, scientific treatises would have to be provided with prolegomena containing a mass of introductory matter which most authors would scarcely be in a position to furnish, which most readers would not need, and which many even of those to whom the body of the book was sufficiently intelligible, could not understand at all.

Hence the psychologist may legitimately begin talking at the very outset of an external world and of sensations. His words will not be unintelligible even to a beginner, and a thorough analysis of the conceptions which he is using may be postponed to some more convenient season. If we deny the psychologist the right to proceed upon the assumption of an external world and of minds mirroring it, insisting that he must first criticise these conceptions, where, I ask, shall we draw the line between the work of the psychologist and that of the metaphysician ? If we refuse to draw any such line, and thus to recognize the latter as having a field of his own, we must choose between two alternatives: either we must leave a number of very interesting questions unanswered, or we must burden psychological treatises with metaphysical disquisitions which have no necessary connection with the matter of which it is their chief purpose to treat, and with

which it is certainly contrary to the more modern usage to burden them.

To the second objection mentioned above as urged against the psychological position which cuts the mind off from a direct knowledge of things and shuts it up to the world of its own ideas, namely, the objection that the mind should not be regarded as thus isolated, but should be conceived as directly knowing, in the act of perception, both ideas and things — to this objection it is not difficult to find an answer. The psychological position is, as we have seen, self-contradictory ; but it has been indicated that the contradiction may be removed by a restatement which leaves unaffected any psychological truths which have been established by the accepted psychological methods of investigation. I shall try to show later how one may set about the removal of this contradiction, and thus prove that psychological truths really are truths, and are worthy of our acceptance. It will, I hope, become clear that the psychologist really describes the facts of our experience, and that his statements, properly understood, are not contradicted by those facts.

But such a justification of the psychologist cannot be found in the attempt to improve upon his position by distinguishing as he does between ideas and things, regarding ideas as, in a sense, representative of things, and some ideas as more or less like the things they represent, and then granting the mind a direct knowledge of the thing, as well as of its representative idea — placing idea and thing, so to speak, side by side before it. It is within the reach of every man to satisfy himself of the error of this position, for it is refuted by his simplest experiences. If consciousness testifies to anything clearly and unmistakably, it is to the fact that we do not, under normal circumstances, see things thus doubled. The inkstand in front of me I see. I see only one. It appears to be out in front of my body in real space. Is there also a copy of it somewhere else? perhaps, within my body? I perceive nothing of the sort. I have never perceived any kind of an inkstand, whether original or representative, within my body. If I press upon the sides of my eyeballs in the manner before alluded to, I perceive two inkstands, and I can make both of these dance about. Are there now in my experience two originals and one image, or two images and one original? I perceive nothing save the two inkstands, apparently of the same nature, which are both

in motion. If it be insisted that there is but one real inkstand before me, and that that one remains at rest, I answer, that this fact, if assented to by me, must be assented to as a consequence of a process of reasoning, for it is certainly not given within my immediate experience. I simply do not see anything of the kind. It is only the philosopher, or the man whose mind has been perverted by intercourse with such, that can so impose upon his senses as to seem to himself, when he gazes upon a material object in front of him, to be conscious both of a copy and of an original.

This doctrine, moreover, if taken up seriously into psychology, must be productive of much perplexity and distress. It must paralyze the ordinary activities of the psychologist much as an incursion of the barbarians paralyzed the wonted industries of a busy and peaceful community. The psychologist enters, for example, upon a laborious description of the way in which a mind, by putting together and arranging the messages reaching it through the senses, builds up a more and more complete and satisfactory representation of an external world of things. He discusses the various elements of which such a consciousness must consist, limits the knowledge of the mind concerned to the materials which have been furnished to it, and holds that if any one class of elements be lacking, the mind's knowledge of the world will be correspondingly defective. But here is a doctrine which grants the mind a direct knowledge of external things independently of the existence in it of such a representative image. Of what importance, then, is the image, and what does it matter whether it be defective or not? The mind will know things just the same, whether it has ideas of things or lacks them, and the function of ideas in knowing is not apparent. Upon this supposition a mind could conceivably know the external world and comprehend its properties and its happenings without having any ideas at all. Surely the psychologist must stand aghast at such a possibility. What has become of his doctrine of the senses, of the conveyance of nervous impulses to the brain, of the elaboration of the impressions received, of the gradual emergence of a knowledge of things? And how, on such a basis, can the psychologist explain the possibility of being deceived about the natures of things? How explain an hallucination? If, in perception, there were immediately present to the mind, in addition to the image, also the thing represented by the

image, no mistake as to the objective reality of the experience would be possible.

The fact is that this doctrine simply cuts away the foundations of the science of psychology as it at present exists. This is not the direction in which we must look for a way of escape from the difficulty which seems to confront us when we occupy the psychological standpoint. For an indication of the right path I shall ask the reader to wait a little, and, in the meantime, I shall ask him to believe that the psychological standpoint is not without its justification, even if it cannot be regarded as final.

CHAPTER III

HOW THINGS ARE GIVEN IN CONSCIOUSNESS

FROM what has already been said it should be plain that he who would subject the world of his experiences to reflective analysis must begin his labors with an examination of the world in which he seems to find himself — the world of common thought and common sense. In his attempt at critical reconstruction he must use the material at hand; and he must employ words and phrases, in communicating his thought, which are the common property of the race, and which have been coined for the purpose of making distinctions recognized by men generally, and not those which may come to be marked by the more reflective. The metaphysician is a man, like other men, and may easily be misled into accepting as final, merely because he is accustomed to them, ways of thinking which sorely need revision; and since he is compelled to take language as he finds it, and do his best with a decidedly imperfect instrument, he may easily be misunderstood when he is not really at fault.

It is necessary for me to emphasize the last point, at this stage of my discussion, because I propose in this chapter to examine how things are given in consciousness. This expression may easily give rise to misconception. It may be taken to mean, and by the man who occupies the psychological standpoint it will most naturally be taken to mean, that I intend to describe certain impressions, made by an external world quite beyond consciousness, upon a particular mind.

But the criticisms contained in the last chapter have, I hope, made it evident that we have no reason to believe that anything is literally "given" to consciousness in this way. If we really do find ourselves in an external world, and have any reason at all for admitting its existence, it must itself be "given in consciousness" in some sense of the words, and it only remains for us to discover in what sense. This inquiry I shall relegate to certain chapters

farther on in this work. Meanwhile, I ask the reader to follow me in marking certain distinctions in our way of being conscious of things, which, if clearly grasped, will be of no small service in helping us to approach the task intelligently.

It is of the utmost importance to recognize that what is "given in consciousness" may be given in consciousness in very different ways. In the first place, there is the distinction between that of which we are conscious vaguely and indefinitely, and that of which we have a distinct and analytic consciousness. Of this distinction even the unscientific man cannot be wholly ignorant, and it has been discussed at great length by the psychologist. No one pretends to recognize singly all the elements that enter into that highly complex mass of sensations which gives information of the various parts of the body. The man who gazes upon a landscape, and enjoys both the beauty of the scene and the manifold associations to which it gives rise, knows that he cannot enumerate offhand all of the elements which enter into his mental state and attribute to each its relative importance.

The stream of our conscious life does not consist as a whole of sharply distinguished parts, although certain portions of it from time to time stand out distinctly from the rest and are known in a much more satisfactory way than are the other parts. It is like a picture with a few clear figures which detach themselves more or less vividly from a dark and indefinite background; a picture peculiar in the fact that the figures which thus reveal themselves clearly keep changing, growing brighter or fading away and giving place to others; a picture ever varying, yet retaining in its general outlines the character which it had before. The fluctuations in the clearness with which given elements stand out from the rest are to some extent dependent upon our own volition. By attending to this element or that we give it a greater prominence, and drag it, as it were, into the light. The vague feeling of bodily discomfort may lead a man to notice that the chair upon which he is sitting must be an unusually hard one, or that his foot has been drawn up under him in a cramped and unnatural position. The traveller viewing the landscape may deliberately single out certain features as especially pleasing, or consciously dwell upon some other scene, recalled by this one, and recognize it as largely accounting for the emotion which inspires him. The importance of the part played in our conscious life by its dimly conscious or semicon-

scious elements most men are inclined, from a lack of reflection, to underestimate; but the fact that there exist in consciousness the two kinds of elements, and also that elements are continually emerging from an unnoticed obscurity and taking, for a time, a position in the foreground of consciousness, where their character and their relations to other elements may be clearly discerned — these things are admitted by all.

Reflection upon the foregoing makes it easy to assent to the statement that it is difficult to know what the contents of consciousness really are. It seems at first sight absurd to maintain that a man does not know all that he is conscious of; and yet there is a sense of the words in which the statement is strictly true. The verb *to know* may be given more than one meaning. If we choose to take it in a very broad and loose sense, we may say that we undoubtedly know everything that exists in consciousness, however dimly it may exist. We are, of course, conscious of everything in consciousness — the statement is purely tautological — and we may, if we please, call this knowing it. But when we speak of knowing a thing, we ordinarily mean that we know it with some degree of clearness and definiteness. We mean that we can hold it up before the attention and scrutinize it, marking its peculiarities and distinguishing it from other things.

The differences in the clearness with which things are known are not accurately determined by the unscientific, and the fact that there are such differences is apt to be overlooked. But when we have come to a recognition of the fact that, in great part, the contents of consciousness lie in obscurity, that the different elements do not stand out from their background, and that they offer no little resistance to the attempt to bring them into the light, we can understand that the task of the psychologist is not an easy one. We cannot expect him to sit down and draw up without further ado an inventory of the elements in his conscious experience. When he attempts to describe for us what he finds "given in consciousness," he is in no little danger of mixing truth with error, and he needs to be endowed both with caution and with discernment.

For example, the man who watches the diminishing speck which represents a vessel fading away on the horizon, reaches a point at which he is uncertain whether he still sees the vessel or not. He does not experience a moment of clear vision, imme-

diately followed by one in which the object is clearly recognized as absent. He experiences a series of gradual changes in which certainty passes into uncertainty, definiteness into indefiniteness. He continues to look, thinks, at one moment that he still sees the thing, at the next moment that he does not, and at still the next believes that he sees it again. In a legitimate sense of the words, he does not know what is in his own mind — whether he is experiencing a sensation or whether he is not.

Sensations may be vivid and unmistakably present; but they may, on the other hand, approach the border line at which they fade out altogether, and their existence may easily be overlooked. The man who is quite sure that a hand has been laid upon his shoulder, may be unable to decide whether he has or has not been touched by a feather. There is no class of experiences which may not occupy this dim region of consciousness. A man may be in doubt whether he is hungry. He may be in doubt whether he is pleased. He may seriously debate whether he is still angry; and he may wonder whether he is still in love. Some experiences in consciousness, even when they are present as vividly as it is possible for them to be, remain curiously vague and elusive. We may be strongly moved, and yet realize that it is quite impossible for us to describe in detail our emotion, although we dimly feel it to be a voluminous and a complex thing.

In the second place, it is important to recognize that it is one thing to be "given in consciousness" directly, and another thing to be "given in consciousness" indirectly and by means of a memory-image. In our endeavors to make a careful analysis of what is given in consciousness, we must hold this or that experience in the focus of attention; and in a vast number of instances what is thus held in the focus of attention must be the memory-image of the experience it is desired to analyze, and not the experience itself.

The man, for example, who is in a towering passion is in no condition to analyze, or even to attempt to analyze, the content of his consciousness at the time. This he can do only when he has grown cool enough to reflect, and when he has grown cool enough to reflect he has, of course, nothing left to work upon but the memory of his rage. Upon the general trustworthiness of memory all science must rest, and yet it must be recognized that everything that presents itself as a true memory-image should not *ipso facto*

be accepted as such. Here, as elsewhere, one experience must be corrected by another, and the truth must be arrived at as the result of a systematic investigation. Every thoughtful man is aware of the fact that, in the endeavor to recall a given scene, he can be even reasonably sure only of the more striking elements, which impressed him vividly at the time when he viewed it; that he is in no small danger of misapprehending others; and that he may easily introduce into the memory-image elements which were not present in any form in the original, and which may even be taken bodily from quite other scenes.

Thus, if a man be required to draw the plan of a suite of rooms through which he has passed, and which he has inspected, it will usually be found that his sketch resembles in some respects what he has seen, but in others does not truly represent it. Doors and windows are not in their proper positions; there are stretches of unbroken wall in the plan which were broken in the original, or *vice versa;* the proportions of the several rooms are not correct. The man has not reproduced just what he has seen, and he has not reproduced anything which was in his imagination at the time of the inspection. Some elements in his representative image do not truly represent anything that was in his mind before. They are products of the creative imagination, not memories.

And if there is this possibility of error in recalling mental experiences which belong to that province of our mental life the objects in which emerge more readily from obscurity and stand out more clearly than those belonging to the rest, how great must be the danger of misrepresenting in memory other experiences, such as the complex emotions of anger or fear. If the elements in such experiences are to be distinguished from one another, they must be brought into the focus of attention individually, they must be held in the foreground of consciousness in some way. Yet such elements primarily occur in consciousness as an almost undistinguishable mass; we are not in the habit of picking them out as we do this or that tree in the landscape before us. We rather *feel* our anger than *know* it, and the exigencies of practical life do not compel us to pay attention to its elements as they do force us to notice the individual material objects that constitute a group.

This brings me to a third, and a very important, consideration. It is clear that when we endeavor to attain to a clear, analytic

knowledge of the content of some experience that we have had, we are not merely trying to reproduce that experience in the memory with fidelity and accuracy. The accurate reproduction of a vague and confused state of consciousness can only be a vague and confused state of consciousness. We do not seek to gain a mere reproduction; what we seek to gain is a representative which, although it must be a true representative, must nevertheless differ in important respects from the experience for which it stands. Reflective thought does not merely reproduce common thought; it analyzes it, breaking up complexes into their elements, and making those elements stand out independently, with fictitious clearness.

The plain man thinks in complexes, and gives himself little conscious effort to analyze them. He sees a man before him, and although he is quite able to distinguish, if asked to do so, between the visual experience which he actually has and other possible visual experiences of the same object, as also between all his visual experiences and his tactual, yet he does not, until he is led to do so by the psychologist, reflect upon and clearly realize the complex nature of this percept and of all others, or attempt to enumerate the elements which enter into such. He does not distinguish what is in the sense from what is in the imagination, and it is not necessary for him to do so. He can touch the man if he wants to, and it is nothing to him whether the tactual qualities of the thing he sees are what philosophers call "actual" or what they call "potential." He uses his percept as he uses his food. He leaves it to some one else to analyze it.

So also he agrees to meet us at a certain place at a given time, and his thought is sufficiently definite to be useful. He can find the place at the time appointed, but he cannot tell exactly what he means either by space or time. It is quite possible to employ with a good deal of accuracy a given mental state, without having any such distinct consciousness of its component parts as to be able to enumerate them. We all know things and do things without, as we express it, knowing how we know them and do them.

But it is evident that even in common thought there is always going on an analytic procedure of a certain kind, and determined by practical needs. It would be quite impossible for a man to compare two material things and discover that they are in some respects similar and in some dissimilar, were it not possible for

him to distinguish, in at least a vague way, between the several aspects or elements of the things in question. When a man looks at two trees and sees that they are of equal height but contrasted in color, he has distinguished with some clearness between the elements of form and color. Could he not do this, he might dimly recognize two trees as alike or as unlike, but he could not point out the elements which determine the similarity or the dissimilarity. Nor is it possible to comprehend how any man can comprehend the thought contained in a page of any ordinary book unless we recognize that words can mean something to him without standing for individual objects, as we usually understand that term. The elements of consciousness for which they stand may be something too simple and fragmentary to constitute pictures, to form what have been so happily termed the "substantive" parts of consciousness; but these elements must obtain some sort of individual recognition, however fleeting and, for reflective thought, unsatisfactory that recognition may be.

When we say, therefore, that the plain man uses his mental complexes without analyzing them, the statement needs modification. He does not analyze them consciously and with a deliberate view to a clearer comprehension of the elements which compose them, but he does analyze them instinctively and automatically, impelled by practical needs. Those things which come into the foreground of his consciousness and occupy his attention, are not whole objects, but rather aspects and elements of objects — just what reflection strives to obtain a clear view of. The man who scrutinizes a newly purchased desk runs his eye over every part of it; he marks its length, its breadth, its color; he finds it too high or too low, or remarks with satisfaction that he can write on it with comfort. These aspects of it occupy his mind successively, and not simultaneously.

There is, however, a very important difference between such an analysis of mental complexes and a distinguishing of their separate elements as unavoidably takes place in all thinking, and the deliberate analysis of reflective thought. In the former, although certain elements do enter the foreground of consciousness, and receive, for a moment, something like individual attention, yet their prominence is but momentary, it is means and not end, and the mind passes on to something else without attempting to determine clearly what has taken place. The elements upon which attention

is fixed do not occupy the mind to the exclusion of others; they merely enjoy a relatively greater prominence. It is not possible either to see or to imagine the length of a table quite by itself. What one sees or imagines is something much more complex, and the fixing of attention upon the element of length does not banish the others, but merely throws momentarily an added ray of light upon this one. With our best efforts we cannot hold it permanently before the mind in this way, nor can we attain to such a clear consciousness of it as we seem to obtain of certain groups of elements taken as groups. We may thus fail to recognize what has actually taken place, and may even deny that the mind has in any way singled out separate elements and made them the object of special attention. It is easy to see, in following the nominalistic utterances of such writers as Berkeley and Hume, that it was this impossibility of holding before the mind as clear images the elements singled out in the rapid analysis which takes place in all comparison of objects, that led them to deny the possibility of abstraction in any form whatever. The mind does not rest in abstractions, but rather in a somewhat diffused consciousness of groups of elements, and it finds it as difficult to describe the path of its rapid flight from group to group, as does the man who has tied his shoes to describe the motions that he has made during that operation.

But reflection upon our mental processes makes it evident that mental elements quite incapable by themselves of forming pictures are singled out by the attention and become determinative of mental constructions of many sorts. Not only is it clear that this must be so, if objects and aspects of objects are to be compared with each other, as they certainly are compared with each other, and if the structure of a language is to be comprehensible; but we find in a less obscure field of our experience a similar procedure which makes it not difficult to comprehend what must take place in such cases as are under discussion.

It is recognized by every one that all the objects in consciousness do not stand out with equal vividness; and though there may be a dispute as to what is actually in my mind when I fix attention upon the length or the color of the pen which I hold in my hand, no one will dispute that the pen as a whole, so long as it is an object of attention, is singled out from the other contents of consciousness and stands forth with a certain prominence. The fact

that there is a difference between a clear and a vague consciousness of things, the fact that there may be various degrees of clearness, and the fact that all those things which constitute the consciousness of a single moment are not perceived with equal clearness, are generally admitted. But if we can thus distinguish between the *objects* of consciousness, singling out some from others and bringing them into the focus of attention, is it not easily comprehensible that the mind, by an analogous procedure, should single out certain elements of these objects from other elements and recognize their presence individually in a somewhat similar way? That these elements cannot singly be held before the mind as pictures in no way invalidates the argument.

The man who reasons thus may next have recourse to direct introspection. When he looks at his pen and distinguishes it from other things, he is conscious that he singles it out and makes it stand forth from its background in an individual way. And when he fixes attention upon the length of the pen, abstracting for the time being from its other aspects, he must feel that something analogous is taking place. When attention is diffused over the pen as a whole (a somewhat loose expression, but expressive of a truth), the background upon which it is seen does not disappear from consciousness. It simply lies in a comparative obscurity. And when attention is fixed upon the length of the pen, the other elements which go to constitute the object do not disappear from consciousness; they only suffer a partial eclipse, they withdraw momentarily into the shade. The two cases are not wholly dissimilar, the difference is rather one of degree than of kind; and a careful attention to what actually takes place during the concentration of attention upon one aspect of an object, accompanied by an effort not to be misled by a preconceived notion derived from the nominalistic philosophers, or by a false expectation of being able to turn a single element, seized in a fleeting glance, into a relatively permanent image, will reveal that single elements of consciousness (I use the phrase somewhat loosely) can be made to stand out for a moment from those accompanying them, and may be at least sufficiently recognized to be named and used in later reasonings.

It is the part of reflective thought to seek to determine such elements with some degree of accuracy, to fix them by the use of a symbol, and to obtain as exact a knowledge as may be of the inti-

mate structure of those mental complexes which we all use, but which we do not all analyze, except in the rudimentary and semi-conscious way indicated above. To common thought such complexes present themselves usually as units; the fact that they are really analyzed in a vague and inadequate way, even in common thought, is apt to be overlooked. The procedure of reflective thought in separating them into their component parts appears to be unnatural, a juggling with mere words. And in a sense, such a procedure *is* unnatural. It is dealing with things as man in his primitive simplicity, or even as man endowed with merely scientific culture, does not deal with them. It is eating the forbidden fruit, and results in expulsion from the unreflective paradise in which every man passes his youth, and in which most men bring to an end their declining years.

Thus reflection attempts to obtain a clear and detailed knowledge of the contents of consciousness, to resolve complexes into their constituent parts, and to recognize these parts as it is impossible for common thought to recognize them. The task is sufficiently difficult, and it is evidently quite possible that, in the endeavor to represent to one's self clearly the actual content of this or that experience, one may fall into serious error. The experience in question is not reproduced; it is represented by a proxy, and it may be misrepresented. In approaching such a reflective analysis of experience there are certain things upon which it is worth while to lay emphasis at the outset.

For one thing, it should be recognized that, just because of the difference that obtains between common thought and reflection, the plain man cannot be regarded as a satisfactory witness touching the things which are to be found in his own experience, when it is desired to obtain such a knowledge of these things as common thought does not usually furnish.

It has been pointed out that a man may agree to meet us at a given place at a given time, and may keep his appointment, without knowing at all clearly what he means by space and time. He has no such knowledge of these as the reflective man wishes to obtain. When questioned he often gives very silly answers; and he may make statements which find absolutely no justification in the experiences which he has had and which he is endeavoring more narrowly to determine. Scientific progress is not attained by shovelling together opinions and counting heads, and it requires some

sagacity to know what sort of testimony one may accept in establishing facts of a particular kind. It would not be well to accept the undivided vote of the continent of Africa as evidence of error on the part of a handful of European mathematicians.

Nor can reflective thought accept without criticism, as giving a satisfactory account of the elements in human experience, that crystallization of common thought which we call language. The latter reflects the kind of thought which it was developed to express, and however well adapted to its purpose it may be, nay, just *because* it is well adapted to its purpose, it has the limitations which we might justly expect to find in it. It is sufficiently common to appeal both in psychology and in philosophy to the opinion of the plain man or to the common use of certain words, but the appeal must, in very many instances, be as senseless as the reference of a complicated technical question to the decision of a petit jury. If it is a question of something that lies within the province of reflective thought, the man who does not reflect will probably be right only by accident. It goes without saying that both the opinion of the vulgar and the thought revealed in the structure of a language furnish most valuable material for reflective thought to work upon. Men may have experiences even if they cannot analyze them, and their inadequate descriptions of those experiences may yield to others some indication of their true nature. The popular vote is not valueless; it is simply material for investigation.

Again, we must not be surprised if we discover to be composite and analyzable some things in consciousness that common thought is inclined to regard as ultimate and simple.

It is natural to suppose that experiences which the instinctive and imperfect analysis of the unreflective does not show to be complex, may, when subjected to a more careful and thoroughgoing analysis, turn out to be highly complex. For the purposes of common life it may be unnecessary to distinguish with any degree of clearness between the elements which enter into these; and, as we have seen, such analysis as is found in common thought has its limits determined by practical ends. Hence, it is unwise to assume a given experience to be unanalyzable just because it presents itself at first glance under this aspect, or because men generally are in the habit of so regarding it. Any experience should be regarded as really simple only at the end of a very careful investigation, and after the application of every direct and indirect method

known to reflection in the effort to resolve it into something more simple. Even then, the conclusion should be held tentatively, and there should be a readiness to change one's opinion if new evidence is forthcoming.

Furthermore, we should in some cases be content to arrive at our conclusions as the result of a process of deductive reasoning, and should not insist upon evidence of a kind which, under the circumstances, we have no right to expect to obtain. This point has been touched upon a little above, where I have pointed out that consciousness-elements, incapable by themselves of forming pictures in the sense or in the imagination, may yet be singled out by the attention and become determinative of various sorts of mental constructions. I can best illustrate my position by quoting from David Hume, that arch-enemy of all abstraction, a passage marked by his characteristic lucidity, which, however, only serves to reveal the more clearly the erroneous nature of his reasoning. He writes :

"Thus, when a globe of white marble is presented, we receive only the impression of a white color disposed in a certain form, nor are we able to separate and distinguish the color from the form. But observing afterwards a globe of black marble and a cube of white, and comparing them with our former object, we find two separate resemblances, in what formerly seemed, and really is, perfectly inseparable. After a little more practice of this kind, we begin to distinguish the figure from the color by a *distinction of reason;* that is, we consider the figure and color together, since they are, in effect, the same and undistinguishable ; but still view them in different aspects, according to the resemblances of which they are susceptible. When we would consider only the figure of the globe of white marble, we form in reality an idea both of the figure and color, but tacitly carry our eye to its resemblance with the globe of black marble : and in the same manner, when we would consider its color only, we turn our view to its resemblance with the cube of white marble. By this means we accompany our ideas with a kind of reflection, of which custom renders us, in a great measure, insensible. A person who desires us to consider the figure of a globe of white marble without thinking on its color, desires an impossibility ; but his meaning is, that we should consider the color and figure together, but still keep in our eye the resemblance to the globe of black marble, or that to any other globe of whatever color or substance."[1]

[1] "Treatise of Human Nature," Book I, Part I, § 7.

But it is very evident, as has been pointed out, that such a comparison of objects would be impossible were they not analyzed into their elements, dimly and momentarily perhaps, but still with sufficient clearness to make it possible to recognize these elements as entering singly into certain combinations. If the figure and the color of the globe of white marble really remained to my mind "the same and undistinguishable," it is inconceivable that I should be able, in comparing this object with another, to assert that it was similar to it in one respect and dissimilar in another. What can the phrases "in one respect" and "in another" possibly mean when we are dealing with what is strictly "the same and undistinguishable"? If form and color are really undistinguishable, then any object which resembles another in form resembles it in color too, for the two words mean the same thing, if, indeed, they have any meaning.

Hûme has recognized as existing only those things which exist in consciousness as pictures, which do not merely stand out for a fleeting moment, but retain their position of prominence long enough to force upon the unreflective a recognition of their existence. And since single aspects of the complex experience he is discussing cannot be made to stand out in this way, he refuses to recognize their existence at all. I have indicated above that one who has, by reasoning, arrived at the conclusion that such experiences as Hume assumes to be simple must be complex, and that single aspects of them must receive some sort of individual recognition, may in some instances verify his conclusion by having recourse to introspection. He may convince himself that in comparing the marble objects he is really conscious of form as he is not of color, at the one moment, and conscious of color as he is not of form, at the next. But the utterances of consciousness, thus directly appealed to, are not so clear and unambiguous that they may not be misunderstood; and, in certain instances, where we are dealing with what is highly abstract, it may be impossible to have recourse to introspection at all. Introspection may, thus, support the general conclusions arrived at by processes of deductive reasoning, and it may serve to show that our method is a correct one; but it cannot be expected to speak with as clear a voice as Hume insisted upon hearing. We cannot be analytically conscious of the many resemblances and relations of which a perceived object is susceptible, as vividly as we are conscious of the complex out of which they are successively singled. But it is quite impossible to

explain the phenomena of our mental life unless the existence of these, its more evanescent aspects, be recognized.

The temptation to overlook the truth here insisted upon is by no means so great to-day as it was at an earlier time. The investigations of modern psychology have made it very evident that the contents of consciousness are perceived with varying degrees of clearness; and have also revealed that what has been called the threshold of consciousness is not a line, but a strip of territory, a debatable land peopled by shades which have a real though a shadowy being. For example, the subjects who, in Professor Cattell's experiments on the perception of small differences, were given the task of judging which of two lights, exhibited at a brief interval, was the brighter, could usually distinguish the difference with a good deal of clearness when it really was a considerable one, and with less clearness when it was smaller. But it was found that even where the subject felt that he was making a decision at a venture, and doubted whether he had anything at all to go upon, he was right a sufficient number of times to reveal that his decisions were not the result of pure chance.[1] He appeared to be determined by a sense of difference that had sunk below the level of clear consciousness, but had not disappeared from consciousness altogether; a sense of difference which still retained sufficient influence to bring about a correct decision in a certain proportion of cases. Of course it would be rash to conclude from this that every difference, however minute, in the external stimuli, must be the occasion of a parallel difference in the corresponding sensations. There may be physical differences to which there are no corresponding differences in physiological function and psychical reaction. The limits of such systems still lie pretty much in the dark. But we have, at least, warrant for assuming that the limits of such systems lie beyond the point at which one ceases to have a clear and unmistakable consciousness of differences in sensation.

A good illustration of the method of arriving by deductive reasoning at a knowledge of the existence of mental elements which do not present themselves in a clear light to the eye of direct introspection is furnished by an investigation into the nature of similarity or likeness. That in some instances, at least, we mean by similarity nothing more nor less than partial identity

[1] "On the Perception of Small Differences," Philadelphia, 1892, pp. 142–145; see also pp. 124–127.

appears sufficiently evident. When we look at two buildings and recognize that they are constructed in the same architectural style, but differ from each other more or less in the manner of their ornamentation, we are evidently analyzing the buildings into their component elements and recognizing that certain of these elements are, in the two cases, the same and certain are different. If the differences are unimportant in comparison with the identical elements, we declare the buildings to be very much alike, but if the contrary is the case, we declare them to be but little alike. And we recognize two chairs to be similar when both are provided with rockers, even though the one may be constructed of wood and the other of cane. The man who has a forehead and a nose like Napoleon may have a very feeble chin, and it is easy for us to indicate in such a case wherein the two men resemble each other and wherein they do not. We at once recognize the complexes we are comparing to be complexes, and we separate them by analysis into their component parts, distinguishing clearly between those which are identical and those which are different.

Even where it is not very clearly recognized that the objects to be compared are complexes, the fact may be virtually recognized, the elements may be separately named, and the points of identity and diversity may be pointed out in detail. Such was the case in Hume's illustration of the marble globes and the marble cube. Color and form were distinguished from each other, and it was seen that there might be an identity in the one element and a diversity in the other. The critic who reads Hume's discussion can see that he treated his globes and his cube just as he would have treated a building, a chair, or a human face, and that his conclusions arise from the fact that he was not clearly conscious of his own mode of procedure. There can be no legitimate dispute now as to what took place in his mind.

But it is possible to cite instances of a more doubtful nature. For example, it may be questioned, and is questioned by some, whether we class together different colors, such as red and blue, because, together with the differences which distinguish them, they also contain identical elements, elements not to be found in such sensations as those of sound or taste; or whether we treat them in this way merely because they happen to be sensations referred to the same bodily organ.

This question seems to find a sufficient answer in the fact that

within the province of any one sense we recognize minor classes, putting together and distinguishing from each other various kinds of blues and various kinds of reds. These minor classes cannot find their explanation in the grouping of wholly different sensations through a common relation to a single sense-organ, nor can they find it in a reference to some one physical cause. They were made before anything was known about the luminiferous ether and the number of its vibrations per second. If an explanation is to be found for them at all, it must be found, as it seems, in the nature of the sensations themselves. And unless we take refuge in the assumption that it is an ultimate fact, to be accepted, not explained, that we compare and find similar but not wholly identical various sensations which are not complex, but simple, and cannot present different elements of identity and difference, we must assume that our mode of procedure is similar to that in the cases described above, and that the obscurity of the question simply arises from the fact that we have passed into a region where all things are obscure, the misty region between clear consciousness and no consciousness at all.

The assumption that we have arrived at what is ultimate and inexplicable is either one made provisionally for convenience in certain fields of psychological work, or it is the asylum of ignorance — the refuge to which a man betakes himself when he would rather have almost any settled opinion than no opinion at all. Certainly it is not justified in the face of the fact, that when we are investigating cases of resemblance in a region in which the objects in consciousness present themselves with some degree of clearness, we find resemblance to consist in partial identity, and of the added fact that many of the elements of our conscious life lurk in the shade, and refuse to reveal themselves so distinctly that they can be told off one by one without danger of error. Analogy points to the conclusion that the same explanation may serve here which showed itself to be the true one in other instances.

But what shall we say of the choice of the one word "sweetness" to describe things so diverse as the taste of sugar and the sound of a human voice; or of the word "brilliance" to characterize experiences so different as the light of a lamp and a flight of eloquence? Is there any element of identity by means of which such experiences are grasped and classified?

Of course, this use of language is not arbitrary; there is

felt to be a certain appropriateness in such expressions as "a sweet voice," "a smooth voice," "a brilliant speech," "an inflated style," etc. We feel that, in any given instance, a particular expression is the suitable one, and cannot be replaced by a different one without detriment to the thought. There must be something, either in the experiences themselves, or in the relation which they bear to other things, to justify such a selection. In the instance of the colors there seems good reason to believe that the bond between them lies in an identical element in the experiences themselves; at least, there is no good reason to believe that this is not the case. But, in the other instances referred to, the more reasonable explanation may be that the two experiences between which we remark an analogy stand in a common relation to something else, and that it is this common relation that we mark by the use of the expression employed in description. For example, even if we conclude that a sweet taste and a sweet voice have no common element, a conclusion which we should not draw hastily, we may have reason to believe that both give rise to emotional states which contain such an element, and we may discover the analogy, which we recognize, to be an instance of partial identity after all — of partial identity, so to speak, at one remove. It is quite clear that things may resemble each other, not merely in what they are in themselves, but also in their relations to other things. Two trees, in themselves not unlike each other, may also be alike in the fact that they are equally distant from a third tree. If this last point of similarity be the important one for the purposes of any special bit of reasoning, it may be the one to be singled out and held before the attention, and other points of resemblance may be allowed to pass unnoticed.

This analysis of the nature of similarity not only furnishes a good illustration of the method of arriving, by deductive reasoning, at a knowledge of the existence in consciousness of elements which do not reveal themselves clearly and unmistakably to direct introspection, but it serves to bring into relief the true nature of thinking by the aid of a representative or *symbol*.

The distinction between what is "given in consciousness" intuitively and what is given in consciousness only by means of the symbol has long been recognized, and it is one of which no thoughtful mind can be wholly ignorant. It is simply the distinction between the thing itself and the representative of it

which we choose to employ or may be compelled to employ in dealing with it. When I look at a single pebble lying before me in the road, I am clearly conscious of it as one. If, however, I collect fifty such, and spread them out before me, I cannot, in looking at them, be conscious of the whole fifty, as I was conscious of the one. The number of elements that can stand out clearly in consciousness at any one time is limited, and that number is here exceeded. It is true that, if the whole number fall well within my field of vision, I may, for aught I know to the contrary, be dimly conscious of the whole fifty at once. This does not mean that I am conscious of them as fifty — as more than forty-nine and as less than fifty-one. To be conscious of things in this way is not to be dimly conscious of them. When I say I may be dimly conscious of them all at once, I mean only that there may be dimly present in consciousness all those distinctions which, could they be more clearly marked, would be recognized as constituting this group a group of fifty individuals. But since it is out of the question to substitute for this dim experience a clear consciousness of fifty individuals, we are forced to represent it by a symbol, and treat the symbol as though it were the thing itself.

The symbol may, of course, represent any aspect of the thing with which we have to deal; in the instance given, it represents their quantity or number. A system of symbols may become extremely complicated, and single symbols, or whole groups of them, may represent, not merely a collection of things which can only be dimly perceived in a consciousness at any one time, but also what cannot be directly present in any consciousness, even dimly. In other words, much of our knowledge must ever remain symbolic. It is hardly necessary to point out that a system of symbols cannot be a purely arbitrary creation. Symbols must truly represent things, or some aspect of things, and the sole foundation upon which they rest, the sole source from which they obtain their meaning and worth, is the intuitive knowledge which furnishes us with a direct experience of things.

It is of no little importance to recognize what constitutes the symbol as such. We frequently speak of the marks which the mathematician makes upon his paper as symbols, but a little reflection reveals that the figures themselves are merely the "Träger," the arbitrary carriers, of the true symbol, the mathe-

matical relation which it is desired to express. They are the hooks upon which it is convenient to hang thoughts, the handles by which the thoughts may be grasped, not the thoughts themselves. They *suggest* thoughts, and do not, properly speaking, *represent* them at all. Their whole meaning lies outside of themselves.

In a broad and loose sense of the word they may be called symbols; and it is certainly possible, by their aid, to deal with complicated experiences in a way in which it would be impossible to deal with them directly; but when one deals merely with figures, and performs mechanically various operations which one has learned to perform without insight into their significance, one can only by way of courtesy be said to be occupied with mathematical reasonings. The figure 6 may suggest six objects, but it does not represent them as a short line may represent a long one. In the latter case some of the elements of the line represented are actually present in the representative — for example, its divisibility into parts, or the nature of its curve. The mind may fix attention upon these points of similarity, and neglecting the differences, may observe mathematical relations with a vivid sense of the precise nature of the mental operations which it is performing. It may then carry its results over to the longer line with a feeling of confidence that it will not fall into error, since its representative truly represents the longer line it is desired to determine, in the only qualities which enter into the question. It is really dealing, not with a short line and a long one, but with certain aspects common to both; and in using the representative as it does, it simply employs a convenient device for holding those aspects steadily and clearly before the mind. The short line does not *as a whole* represent the longer one: it represents it only in its identical elements, and the mistaken belief that it represents it also in others can only result in confusion and in error. A line can conveniently represent a line because it is like it; it cannot represent a mathematical point in the same way, because the two do not thus resemble each other.

A careful examination of our knowledge by means of a representative or symbol, in the many instances in which our mental operations do not lie too much in the shade to permit of our scrutinizing them with some degree of clearness, reveals the fact

that we are really dealing, either with aspects of things, brought before the mind, for convenience, not singly, but combined with elements not directly concerned in our reasonings; or with conventional signs of such aspects of things, such as the figures used in arithmetic. And it seems reasonable to hold, at least until good reason be adduced for abandoning the assumption, that the same explanation may be given of those instances of representative knowledge which do not easily lend themselves to analysis.

Moreover, when one has firmly grasped the significance of the symbol, one is in a position to form some estimate of the possible limits of symbolic knowledge. It is quite possible for a man to mistake the arbitrary signs of thoughts for thoughts, and to suppose that, when he has made an intricate combination of such signs, he is necessarily dealing with an intricate thought. Yet he may be doing so or he may not — it is necessary to bear in mind that one may so put together the conventional signs of thoughts that the combination does not in itself represent a thought of any sort. It does not follow that such a combination may not be of service for certain purposes, that it may not, at least, be a useful record of a series of operations which have been performed or which may be performed. That the whole group of signs, taken as a group, cannot truly symbolize any conceivable experience, does not prove that the combination is of no value, and may not have a legitimate place in a science. But it is well to remember that it is easy to mistake the significance of signs when they are used in an abstract science. That this is a constant danger, no one knows better than the thoughtful mathematician, and he will be the first to admit that all mathematicians are not thoughtful.

A clear comprehension of the nature of symbolic or representative knowledge is of the utmost importance to the metaphysician. Those who are inclined to hold to the existence of an external world quite different from the world of our experience usually admit that we can never know these external things directly, but hold, as we have seen, that we may know them indirectly through their representative images. But it is as clear as day that we can only know through a representative those things which this representative can truly represent, that is to say, those things which contain identical elements with it, and in so far as they contain identical elements with it. A representative can never stand for something else in so far as that other thing differs from it.

A sound, as sound, cannot represent a color as color, nor can it make in any way comprehensible to a man who has never seen a color, what the nature of the latter may be. Thus if we know immediately only elements in consciousness, it is inconceivable that we should, by means of these, represent to ourselves elements of a different kind in so far as they are different. The necessary limitations to the knowledge of the prisoner in the cell described in the preceding chapter are seen to be not unfairly set forth, when one reflects upon the nature of representative knowledge. The metaphysician *must*, then, cast about for a better doctrine than the one which thus misconceives the nature of symbolic knowledge.

But when he has rejected the doctrine just criticised, shall the metaphysician maintain that the external world is given in consciousness immediately? At the beginning of the present chapter it was indicated that we must assume it to be given in consciousness in some sense of those words. It is palpably absurd to maintain that the external world is intuitively present to any human consciousness in the immensity and overpowering wealth of detail that we seem justified in attributing to the external world. How, then, shall we conceive it to be given in consciousness? The problem does not seem incapable of a reasonable solution when one has come to a clear comprehension of the nature of symbolic knowledge, as I shall try to make plain in the appropriate place; but it appears to be a hopeless problem to one who has not grasped this distinction. This last truth emerges with great distinctness when we examine the perplexities and inconsistencies into which men have fallen when they have endeavored to give an accurate account of the nature of space and time.

I feel that it would hardly be fair to set forth, as I have done in this chapter, the method of arriving, by deductive reasonings, at an analytic knowledge of the elements in consciousness, without at the same time indicating some of the rather startling consequences to which it appears to lead one when applied with logical consistency and thoroughness. Few would shrink from the conclusion suggested by an examination of Hume's illustration of the globes and the cube of marble, the conclusion, namely, that we do really distinguish between form and color, and in some way grasp each element separately. It is generally recognized that a percept

is a complex mental experience, and an attempt is made in modern handbooks of psychology to enumerate in detail its elements. But there are cases in which what appears to be the most reasonable conclusion, from a theoretical point of view at least, is of such a nature that even a trained psychologist may hesitate to give his assent to it.

Such an instance is the following: in studying sensations the psychologist distinguishes in them certain aspects, such as their duration, extensity, intensity, and quality. Let us consider only two of these, and let us suppose a man to be conscious at a given moment of two apparently unextended points of color, the one red and the other blue. These the psychologist will recognize as differing in quality, since the colors are not identical; but he may maintain that the intensity of the two color-sensations is the same. In other words, he recognizes the two sensations to be in the one respect identical, and in the other different, just as in Hume's illustration two globes were found to agree in form and not in color.

But if it is reasonable to infer, from the fact that the one globe is perceived to resemble the other in one element and to be dissimilar from it in another — if it is reasonable to conclude from this that each of these experiences is complex, and that this complex is analyzed in the act of comparison, why is it not reasonable to carry over the same reasoning to the two experiences of color which we are discussing? If two color-sensations really have the same intensity while they have not the same quality, it surely follows that intensity and quality are not identical, but are distinct elements, recognized as distinct, at least implicitly, by every one who distinguishes them from each other. Each of the sensations is, then, a complex thing, and not simple, and the successive acts of attention which mark at one time its intensity and at another its quality, are singling out its elements just as attention always singles out certain things in consciousness from certain others, and gives them a relatively greater prominence. But if such sensations are really complex and may be thus separated in thought into their elements, is it not, at least *theoretically*, possible that the one element might disappear from consciousness altogether, and the other remain undisturbed? In other words, can we not conceive a state of consciousness which would be a consciousness of intensity alone, divorced from quality, or of quality divorced

from intensity? It seems rather appalling to contemplate the possibility of a consciousness of color which has no intensity at all, or of a consciousness of intensity without anything to be intense, but it may be questioned whether we can legitimately arrive at any other conclusion.

It will not do to say that we cannot imagine a color of no intensity at all, and hence the problem may be dismissed. Of course we cannot imagine it as we imagine colored surfaces with all the characteristics which usually mark them. But then we are also unable, when we look at a globe of marble, to separate the color-sensations pure and simple from all the other elements which a past experience of things has furnished us, and hold them up before the mind's eye by themselves. This does not prevent us from distinguishing between them and the rest of the elements constituting our percept, and even believing that in certain consciousnesses — those of infants at the outset of their mental life — they may present themselves in a more independent way.

The question is, to be sure, one of theoretical rather than of practical interest, but it is worth while to discuss it, if only because it brings into relief the general method of attaining an analytic knowledge of the contents of consciousness, and emphasizes some of the difficulties connected with it. That there are such difficulties should be frankly admitted, and it should as frankly be admitted that we are at present far from having as complete a knowledge of the contents of consciousness as it is desirable that we should attain. Were it easy to attain to such a knowledge, many disputes which have been carried on with energy through whole centuries, and which we have inherited from our predecessors, would have died away in a remote past. They still live because they have a reason for living. Our most dangerous error lies in supposing it to be easy to describe our own experience, in assuming that the panorama of our mental life unrolls itself before the introspective eye in a clear light, and that the objects which it pictures stand out in unmistakable detail. It is too often forgotten that it is one thing to have an experience, and quite another to reflect upon it. And until one has reflected upon one's experiences with some degree of success, one can only in a restricted sense of the word be said to have "had" them.

CHAPTER IV

THE ELEMENTS IN CONSCIOUSNESS

The attempt to obtain a general view of the contents of consciousness at first results in a bewildering sense of the variety and complexity of the material which presents itself for examination. But attention soon reveals that there are certain broad distinctions which one may make, and which have been recognized more or less clearly for a long time past.

In the first place, there is the distinction between what is given in the sense and what is reproduced in memory or imagination — a distinction marked by Hume by the use of the terms "impressions" and "ideas."

In a given instance it may not be easy to decide offhand whether a certain experience is to be relegated to the one class or to the other; but in general the distinction is a sufficiently apparent one, and is recognized by the plain man and the scholar alike. Sense-experiences, or at least such of them as usually occupy the attention and stand out in our minds as representatives of their class, possess a vividness denied in most cases to "ideas." I cannot confuse the vivid experience of the pen which I see on the table before me with the shadowy and unsubstantial image of the pencil which I imagine to be lying beside it. The contrast is here very great, and it needs no system of tests to convince me that the two objects fall under different categories. It is true that sense-experiences do not always distinguish themselves so clearly from the images present in the imagination. These images may become very vivid and insistent, and sensations may be extremely vague and obscure. A series of experiments may be needed before it is possible to decide that a certain experience, which is not recognizable at first glance as belonging to the one class or to the other, at least *behaves* in such a way, stands in such a connection with other experiences, that its proper place may be assigned to it with confidence. If we are wise, we will

not assume that the sheeted ghost which presents itself to our startled eyes when we awake from slumber on the stroke of twelve, is a real phantom, a creature of the sense, merely because it is vividly perceived. We will ask it to present its credentials, prove its claim to respectability of character, and, in short, to conduct itself as a real ghost, claiming a right to be admitted into the circle of real things, should conduct itself. If it fails to establish its claim, we will harden our hearts to its unsubstantial sighs, and banish it to the limbo of the things that are not what they seem.

Fortunately, it is not always necessary to employ such indirect methods in distinguishing between sense-experiences and "ideas." In most instances the two classes fall apart of themselves. Were any man capable of confusing them at all times, his progress in a crowded street would be an eccentric one. We may assume that they may be distinguished directly by most men with sufficient accuracy for the purposes of common life, although we must admit the possibility of error in individual cases, and must make a final appeal, when any dispute arises, to the methods of investigation described by the logician. The attribute of possessing a greater vividness is sufficient to mark out roughly the one class of experiences from the other. If there is any other difference in the experiences themselves, we must turn for information regarding it to the psychologist.

Thus we find the phenomena of our mental life divided into two broad classes. It is generally admitted that one of these must be regarded as, in a sense, copied from the other. It is self-evident that the images in the memory cannot be original creations, but can come into being only when there have been certain experiences in the sense; and it has often been pointed out that there is no flight of the imagination which can carry it out of the region of the elements derived in the first instance from the senses. We may combine these elements in many ways, and we may build up complexes which, as complexes, are new; but further than this it is impossible for us to go. No man who has never seen a color can imagine one, nor can he truly represent to himself any experience into which the element of color enters. These truths are commonplaces of psychology, and it is unnecessary to dwell upon them at length.

There is another broad distinction between elements in consciousness, upon which much emphasis has been laid for a few

generations past. This is the distinction between *form* and *matter*, between the *arrangement* of certain elements in consciousness and those elements themselves.

It is manifestly not a complete description of our experience to say that we find in it such and such sensations of sound, color, touch, pain, etc., and such and such reproductions of these in memory and imagination. These sensations and "ideas" are arranged in divers ways, and stand in manifold relations to each other. These relations exist as truly as do the things which stand in relation, and we constantly recognize them in our reasonings in much the same way.

For example, when we look at three blue spots so arranged that lines joining them with each other would form an equilateral triangle, and then look at three red spots similarly arranged, we recognize a sameness and a difference, just as we do when we compare a globe of white marble with a globe of black. We see that there is identity in the formal element in our experience and diversity in the material. And when we compare three blue spots arranged as above mentioned with three similar blue spots arranged in a row, we find the material element to be identical, and the formal to be diverse. In such a case there is no difficulty in distinguishing between the two elements, and in picking out the one from the other. We are evidently dealing with a complex and are analyzing it into its constituents, and the difficulty of holding relations separately before the attention, and obtaining a clear view of them, appears to be only an instance of the difficulty which always confronts us when we attempt to grasp, in an analytic way, elements of the complexes which constitute our experience.

The material elements in consciousness may either be present simultaneously, or they may be successive. In this distinction we have the two most general classes into which the ways of arranging them may be divided. The former class it is convenient to subdivide further, for not all those material elements which appear in consciousness simultaneously stand to each other in what we call spacial relations. These latter form a special class, a form of coexistence of such importance that it is sometimes overlooked that there are coexistences of a different kind. Relations of succession are those classed together as temporal.

It is important to bear in mind the fact that these ways of

arranging material elements are actually found in our experience. It does not appear possible to reduce them to anything simpler, or to identify them with one another. Philosophers and psychologists have sometimes maintained that spacial relations are not actually given in consciousness, but are merely represented by non-spacial experiences, which in some way stand for really extended things without; and they have similarly maintained that we have no immediate consciousness of succession, on the ground that we can exist only in successive instants, that all that is in consciousness at any one instant must be simultaneous, and that any past instant, since it has vanished away and given place to its successor, can only be represented in the actual present by some proxy, in itself not a past experience, but capable in some inexplicable way of standing for one. Thus the images in the memory are, it is claimed, present experiences, but are recognized as symbolic of the past.

It is a sufficient answer to such doctrines to recall to mind the nature of symbolic or representative knowledge in general. We have seen that things can represent each other only in so far as they have identical elements. If this be so, how is it possible for a consciousness, which contains no spacial arrangement of elements, to represent in any manner objects extended in space — to obtain the faintest inkling of what is meant by spacial extension? It contains nothing which can stand for such; coexistent elements not spacially arranged cannot serve its purpose, for the one thing it is desired to represent is not present in them in any form whatever. A small space may represent a large one, in so far as both are space; but the man who seriously holds that nothing in consciousness is truly extended, that none of its elements stand in spacial relations, must either deny to us all knowledge of space whatever, or virtually maintain that sound as sound may represent color as color, or that taste as taste may represent straightness or triangularity as such. It is the old difficulty, the attempt to make something out of nothing; and it is only the obscurity in which the action takes place that prevents the whole procedure from receiving instant condemnation.

So it is also in the case of time. If we have no immediate consciousness of succession, if our memory-images do not themselves belong to the past, even a very slightly remote past, but are present elements which merely *represent* the past, where do we get that

idea of succession which we read into them, thus making them, not present images, but something more? In such a case, this something more must be a mere negation; there can be no positive content to read into our symbol, for none such is furnished by our experience.

Doubtless the reader will here start at the paradox to which our reasonings seem to point, namely, to the doctrine that the past is not really past and vanished, but remains in some sense present in the present moment. This paradox is many centuries old, and many have wagged their heads against it. I shall be compelled to enter into the question at length in a later chapter, and shall try to show that the difficulty is not an insurmountable one.[1] But, for the present, it is enough to insist that a symbol deprived of its meaning is no true symbol, and that if we have no immediate knowledge of the lapse of time, we shall never gain a mediate knowledge of such by fitting together elements in which no element of succession is contained. To declare the representation of the past by present images in the memory to be something ultimate and inexplicable, which one must simply accept, is not merely a refusal to seek further for the explanation of an accepted fact; it is to furnish a false explanation; it is to demand of a representative what it is clear that no representative is able to perform.

When one has distinguished between the formal and the material elements in consciousness, it is important to remember that they are both elements in consciousness and should be treated in our reasonings in much the same way. Sometimes this caution is not heeded, and we not infrequently find the element of form handled in what can only be called a fantastic and irresponsible manner. It seems to be assumed that it is freed from the limitations which attach to the material element and make its manner of existence comprehensible. For treating it in this way there is no good warrant, and doing so only introduces needless confusion into our thought.

An illustration will serve to make this clear. It was pointed out a little above, that, in comparing three blue spots so arranged that the lines joining them would make an equilateral triangle, with three red spots similarly arranged, we recognize a sameness and a difference, an identity in the formal element and a diversity in the material; while in comparing the former with three blue

[1] Chapter XIII.

spots arranged in a row, we recognize an identity in the material element and a diversity in the formal. But it should be remarked that the words "sameness" and "identity," as here used, cannot be taken as indicating identity in the strictest sense.

Three spots of blue color in the one place are not strictly identical with three spots of blue color in another place; they are merely like them. Even if they are so much like them that there is no possible way of distinguishing the two groups of spots from each other except by noticing that they are in different places, there still remains at least this difference. The one thing, no matter what the nature of that thing may be, cannot at once exist in two different places. Nor can the one thing, strictly speaking, exist in two different times. We may, of course, apply the term "one thing" to a complex whose elements are in part successive, and we constantly do thus use it. But the sameness of such a thing is manifestly a very different one from that strict identity which excludes all diversity whatever, whether of time, place, or quality. In common speech we do not determine our thought with great accuracy, and we frequently speak of a color perceived in one place or at one time as identical with one perceived in another place or at another time, not stopping to think whether we are indicating a complete or a merely partial identity. But a little reflection shows us that we must have reference to the latter, and not the former. It is no more possible for two spots of color to be one, or the color of two distinct spots to be one (how hard it is to be clear when language is adapted to indefinite modes of thought!), than it is for two cows or two horses to be one. In the latter case we are dealing with complex experiences, and in the former with elements of such, but temporal and spacial distinctions, which mark the difference, remain just the same. It is impossible that a thing should in any way be distinguished from itself, but it can be distinguished from other things. Where any diversity whatever can be remarked, we are not dealing with the one thing alone.

It is difficult for some minds to see that, in making such statements, we are justified in taking the word "thing" in the broadest possible sense, in asserting that to be true of single qualities of things which is generally admitted to be true of things as commonly understood. The reason for this lies in the fact that we do not usually find it necessary to distinguish between two occurrences of the same quality and mark that distinction by words. When

one asserts that the color of one spot is identical with that of another, and maintains that it is strictly identical on the ground that qualities are not to be subjected to the local and temporal distinctions which mark individual things, he is simply fixing his attention upon color in the abstract, and failing to notice that color is not precisely the same as this or that occurrence of color, for the latter is a more complex experience — it is color *with a difference*. He is recognizing the universal, but failing to distinguish it from the individuals "in" which it appears. It is manifestly an error to confound one individual with another, simply on the ground that they contain a common element, whether those individuals be relatively complex experiences or relatively simple ones. "Color here" and "color there" are not one and the same experience, and must not be confused.

But even those who can see quite clearly that this is so, are not always capable of seeing that the same distinctions must be firmly held to in dealing with the formal element in consciousness. If I can recognize, in comparing two experiences, that they are identical in the material element and diverse in the formal, or diverse in the material and identical in the formal, I am manifestly capable of singling out the latter element from the former and talking about it. It is, of course, important that I should not talk about it incoherently, or deal with it in an arbitrary way. If I fail to recognize that the relations between these three spots of color are not strictly identical with the similar relations between three other spots, but are merely resembling, if I insist that the relations are truly identical, though the material elements are not, I show gratuitous and unjust discrimination, and I throw into hopeless confusion my ideas regarding the formal element in consciousness and its manner of existence.

When I look at the three spots before my eyes I am conscious of both the elements we have been discussing, the sensations of color and their arrangement. If these three spots are these three spots and no others, surely the relations between them are these particular relations and no others. I do not distinguish the spots merely from other spots which differ from them in color, but also from those which resemble them in color but either existed at a different time or now exist in a different place. There is surely as good reason to distinguish these particular relations, existing at this time and place, not only from all relations of a different sort,

but also from those like them which may have formerly existed or now exist elsewhere. It is not necessary for the purposes of common life to mark such distinctions, and it is possible to explain psychologically the error of the man who fails to recognize them. But it is not easy to bring him to a sense of his error. One cannot show him that his reasons for making of a relation a monster capable of existing in several places at the same time are insufficient. He has no reasons for taking such a position. He simply takes it. Possibly it might have some effect upon his mind to show him that all sorts of different objects may be identified with each other by just the same mode of procedure, by fixing attention upon the elements of identity which they present, and overlooking all differences, including such as are spacial and temporal; by taking leave, in other words, of real things, having their definite place in the world-system, and taking refuge in abstractions. Of course, the man who does this has no right to place his abstractions in the real world. That world contains no "place" in general; it contains only definite places that must be occupied by individual things which are not abstractions.

Thus, whether we are dealing with the material element in consciousness or with the formal, we must reason coherently and remain intelligible. A relation is not possessed of miraculous powers any more than a color or a sound. Relations which exist at different times or in different places are thus distinguished as different, however closely they may resemble each other. In short, the difference which we recognize between the elements of form and matter does not justify us in treating them in our reasonings in a different way. It may seem to the reader a gratuitous cruelty to inflict upon him so lengthy a discussion of what appears a simple and evident matter, but there has been so much mystification connected with the formal element in consciousness that one cannot be too explicit.

But if it is possible to fall into the error of treating the formal elements in consciousness as so different from the material that the manner of their existence becomes unintelligible, it is also possible to fall into the contrary error of confounding the two classes of elements with each other, and failing to recognize any ultimate difference between them.

One may argue that when we look at two patches of color, and distinguish the spacial relation in which they stand to each other

from the colors themselves, we are not really separating, in thought, form from matter, for each patch is necessarily extended in space, and is itself a complex composed of both elements, the various parts of the patch standing in spacial relations to each other. If, it may be said, instead of considering the two patches, we take any two parts of the one patch, we will find again that the material element, which we are trying to single out, is not a purely material element, but contains also an element of form; and since any patch of color whatever is infinitely divisible, it is hopeless to attempt, by repeating the operation, to arrive at an element which is material and nothing more; we shall always find color and form combined, never one alone. From this it may be concluded that we have not really to do with two elements, for the material element we may recognize, at any stage of our progress, as *constituted*, or *made what it is*, by the formal element.

In this bit of reasoning it is very easy to find flaws. I shall say nothing here of the assumption that every patch of color is infinitely divisible, for that can best be discussed in a later chapter on the nature of space; but even assuming for the present that no objection can be made to this assumption, the argument may be seen to be an extremely loose one. In the first place, it admits that we distinguish between the two patches of color and the spacial relation between them. It is fair to ask whether this relation is confounded with either of the patches or with both of them, or is supposed to contain any material element? The relation is not a color, and is not supposed to be such by any one. In the second place, it is discovered that each of the patches of color is itself a complex, and consists of material elements which stand in relations to each other. Here again there is no confusion between the elements in relation and the relations themselves. No one thinks of the halves of a patch of color, whether that patch be large or small, as identical with the relation between those halves, or even as like it. So it is at each stage of our progress; the things perceived are distinguished from the relations in which they stand, and they are always recognized as different from them. The fact that the things perceived are not simple elements, but complexes, has nothing whatever to do with the possibility of their being recognized as standing in certain relations to each other, and as being themselves distinct from those relations. By hypothesis, a further progress simply repeats the former experi-

ences; we must always be conscious of two elements, a formal and a material; we cannot arrive, by any possibility, at what is simple and ultimate, but must ever deal with complexes. And from this there is sometimes drawn the surprising conclusion that we do not really have to do with two elements. By what art this conclusion may be abstracted from such premises it is impossible to conceive. Perhaps the difficulty arises partly from the use of such ambiguous forms of expression as that qualities are "constituted by" relations.[1] If we take this as meaning "made up of," we certainly have no warrant in any of the above-described experiences for assuming that a patch of color is constituted by relations. If we take it as meaning "partly made up of," we have no warrant for declaring that the distinction between relations and material elements is not an ultimate one, for our patch of color may also be constituted by elements of a different sort.

Another form of the argument to prove that the distinction between the formal and the material elements in experience is not an ultimate one is the following: It is maintained that every attempt to bring before the attention pure and simple, a mere material element, reveals that what we actually succeed in attending to contains or implies other elements, formal elements, as well. For instance, we are conscious of the color red. But reflection shows us, not merely that we think of the color red as somehow spread out, definitely or indefinitely, in space; but also that the mere consciousness that this is red implies a discrimination between this and other colors; implies, that is, a consciousness of relations, a classification and separation of different elements. What the consciousness of red alone would be, we cannot, it is claimed, possibly conceive.

It is clear this reasoning, too, arises out of a confusion. It may perfectly well be admitted that we are not normally conscious of single sensations all by themselves, and that our total consciousness at any time is something highly complex. But, as we have seen, it is possible by an act of attention to single out and in a certain sense cause to stand forth individually, for a passing moment, elements of consciousness which form a very small part of that total of which they form a part. We cannot banish all the rest of consciousness into nothingness, and we cannot hold such elements clearly and permanently in the foreground of our thought.

[1] T. H. Green, "Prolegomena to Ethics," § 20.

But we can distinguish between these elements and others; we can retain them in the attention while those with which they are associated vary, as is evidenced by the formation of concepts or general notions; and we can indicate to others by the use of language that it is these particular elements that we are interested in for the time being and not others. The denial of such a power makes the procedure of thought in analyzing and comparing complex experiences wholly incomprehensible.

But if this be admitted, it must also be admitted that we can distinguish between the color red and any relations in which it may stand to other things in our consciousness, as well as between the color itself and any other material elements with which it may be combined. To think of the color red and abstract from other elements given with it, it is by no means necessary to reduce our consciousness to a something whose sole content is an experience of red color. And yet, by thus abstracting from other elements we may represent to ourselves, with a greater or less approach to accuracy, what would be the experience of a consciousness thus limited in content. We do not make our whole consciousness representative of the content of such a consciousness; we search among its elements and try to single out from all others only that which will truly represent such a content. It may be difficult in any given case to perform this task with accuracy; it may be hard to strip away all that ought to be stripped away; but there is no theoretical impossibility of performing such an operation. We do something of the kind every time that we think of this person or of that as thinking of this or that. We never suppose that our whole experience is representative of such a person's thought; we merely single out from it so much as we think may be truly representative, and, for the time being, we abstract from the rest.

There is, hence, no theoretical difficulty in distinguishing between the material and the formal elements in our experience; in "thinking of" a pure sensation which does not stand in relation to other things. Of course we cannot hold such an element of our experience before the attention in the same vivid way in which we can represent to ourselves more complex experience, trees, houses, animals. But there is much that cannot thus be held before the attention, which we must still recognize as "thought of," and our thought of such things may be, and indeed is, such an

essential constituent of our mental life, that it could not go on without it.

The question may very justly be raised whether, when we attempt to analyze into their constituents the complexes given in our experience, we may conceivably hope to arrive by this process at *ultimate* elements, in their nature incapable of further analysis, or whether we must always and unavoidably expect to find before us further complexes susceptible of a similar treatment. In the preceding chapter it has been pointed out that it is rash to assume that any given experience is not further analyzable, merely on the ground that it does not at once reveal itself to be complex. Direct introspection is too coarse an instrument to reveal all the parts of that which we may have good reason to believe composed of parts. But this prudent reflection leaves unanswered the question whether there is a point at which a further analysis becomes, in the nature of the case, impossible, or whether the process of subdivision by analysis is theoretically without limit.

Various considerations may be advanced in support of the latter of these alternatives. "Abstract the many relations from the one thing," argues Mr. Green,[1] "and there is nothing." We have seen that there is no great force in his argument, for it is substantially the one criticised above as denying the fundamental distinction between form and matter. It may be held again that, since space and time are infinitely divisible, every experience given in space and time must be infinitely divisible, too, and it is hopeless to attempt to isolate the simple and uncompounded. For an answer to this objection we must wait, as I have indicated above, until we come to certain chapters in which the nature of space and time is more carefully investigated. It will there appear that no true argument may be drawn from this source against the possible existence of ultimate and unanalyzable consciousness-elements.

But it may be urged still again that we cannot know a thing without knowing *what* it is, and that it is impossible to know *what* it is without comparing it with other things, *i.e.* without defining or classifying it. Definition seems to imply the resolution of the object defined into its constituent elements. If we define man, in the traditional way, to be a rational animal, we give genus and difference — what assimilates him to other objects belonging to a certain class, and what marks him out from all other objects

[1] "Prolegomena to Ethics," § 28.

of that class. Anything that we cannot thus separate into its elements we cannot define, and anything which we cannot define we cannot recognize as similar to or different from anything else. Such a thing can in no true sense be an object of knowledge, for we simply do not know what it is.

It is not hard to discover in this argument a confusion between the thing of which we are supposed to be talking and the relations in which this thing may stand to other things. If to know *what* a thing is is taken as meaning to know the thing in its relations to other things, of course it follows that a single element of consciousness, abstracted from all others, cannot be known as this thing or that. To know *what* a thing is appears to be equivalent to knowing the thing and a number of other things besides. No reasonable man would care to deny that such a knowledge as this must be complex.

But we do not accept such a knowledge as an absolute unit and use it as such; we separate it into its constituents, and run over these one by one. We distinguish the thing itself from the relations in which it stands to other things, and we distinguish single relations from each other. The only question about which there can be any legitimate dispute is, whether, in every case, these constituents of our admittedly complex experience must be, in their turn, complex. Undoubtedly each of them may be grouped with other elements, we may seek to know *what* each is by bringing it into relation with all sorts of other things; but this does not in the least imply that we confuse it with the other things with which we bring it into relation, or with the relations in which it stands to such. The thing (I use the word in the broadest possible sense) is not strictly identical with any of these, and is not proved to be complex by pointing out that when it is combined with these the result is a complex.

A knowledge *that* a thing is, and a knowledge of *what* a thing is, if by the latter we mean to indicate a knowledge of the thing in relation to other things, should be carefully distinguished from each other. It is not legitimate to assume that, because we do not happen to have the latter, we do not have any knowledge at all. If it is possible to distinguish, as we have seen it is, between some object in consciousness and the relations in which this object stands to others, there certainly ought to be some word to indicate the consciousness of that object abstracted from the relations in which

it stands to others, and it ought to be possible to contrast such a knowledge with a knowledge which includes these relations. The force of the objection made above to the presence in consciousness of simple elements evidently depends upon the tacit assumption that it is impossible to know a thing in any manner whatever without knowing *what* it is, in the manner described. Such an assumption is sufficiently refuted by showing that it is impossible even to describe the complicated process of knowing what a thing is, without recognizing the presence of acts of knowledge of a more elementary kind. The question of the propriety of using the word "know" to indicate such is a purely verbal one, and need not detain us.

It is worth while to point out that this argument against the possibility of knowing simple elements in consciousness may be urged with equal force against the possibility of knowing complexes in consciousness which have not yet been analyzed. The most ardent champion of the composite nature of our experience will hardly maintain that all that enters into his experience is, not merely analyzable, but already analyzed. It must follow that whatever he has not at any time analyzed is unknown; and if it is a fair argument to bring against simple elements in consciousness that they are unknown, it is an equally fair argument to bring against unanalyzed complexes that they are unknown also. That they *can* be known does not remove the difficulty, for they can be known only by the substitution for them of other unknown things, *i.e.* other unanalyzed complexes. All knowledge must rest upon the unknown as much in the one case as in the other, the only difference being that here the unknown becomes a shifting one. But it is not worth while to spend much time over this argument for the necessarily composite nature of all our mental states. The fundamental error upon which it rests is that, while it insists upon their complexity and maintains that we can always discern them to be composed of parts, it fails to recognize that this very doctrine necessarily implies that we must in some way be singly conscious of those parts or we could not recognize our complex as a complex. It has no name for such a consciousness of the parts of a complex experience.

There is, indeed, good reason to believe that our sensations and our "ideas" are composed of simple elements. From all that has preceded, it will be readily understood that it is impossible to prove

this fact by direct introspection. The only way to prove it is to show that such an assumption harmonizes best with our knowledge as a whole, and offers the least difficulties, and that a satisfactory explanation can be given of the fact that men of intelligence embrace the contrary doctrine and defend it with ardor. As to the formal element in consciousness, it has been maintained that relations should be treated in a coherent way, distinguished as distinct from each other when they occur at different places or different times, and, in short, reasoned about very much as we reason about sensations. It seems to follow that complex relations may be analyzed into simple ones, and that there may be simplest relations which resist any further analysis. Certainly geometrical reasonings recognize the presence of complexes, and endeavor to determine the constituents which enter into their composition. But when all this is admitted, it must be acknowledged that we have no such knowledge of the contents of consciousness as would make possible a detailed description of the individual elements which compose it, and there is small hope that such a knowledge will be attained within any assignable limit of time. If exception be taken to the use of the word "description" in such a connection, one may say, instead, such a knowledge as would enable us to represent to ourselves truly the simple elements which enter into our complex experiences. What it is to represent anything has already been explained.

CHAPTER V

THE SELF OR KNOWER

DOUBTLESS it has seemed to many of those who have read the preceding chapter that its most characteristic feature is one glaring omission. Where is the hero of the whole piece? Where is the self that perceives sensations, has memories, pictures ideal scenes, distinguishes between material and formal elements, and bustles about upon the stage before which the curtain has been raised? To deny the existence of this self, and to deny that it is immediately perceived to busy itself in divers ways seems little short of madness. Do we not say: I see, I hear, I touch, I taste, I smell, I think, I feel, I will? A sensation is always experienced by some one; a thought is thought by some one; an emotion does not float about unattached, like a storm-tossed bit of seaweed, or a dry leaf riding on the wind. It is useless to try to persuade the plain man that he is not conscious of himself as well as of other things, and that he does not do and suffer. As well try to persuade him that he has no consciousness at all.

But it is a misconception of what has been said in the preceding chapter to suppose that it denies these experiences upon which the plain man so stoutly insists, and which certainly no one has a right to overlook. We *are* conscious of self, and we *do* have experiences that we call knowing, feeling, willing, comparing, etc. In the last chapter, however, we were not concerned with complex experiences as complexes, but were endeavoring to fix certain broad distinctions which mark the elements of which these are composed. We were concerned with the elements of consciousness merely, and can be accused of an oversight only if it can be shown that in our complex experiences there is present something that cannot be made to fall within any of the classes there recognized; something so different that it must stand alone and as contrasted with all else. That the experiences adduced above contain such an element cannot be satisfactorily established by accepting

the testimony of the plain man, who knows little, as we have seen, of the separate elements which enter into his experience, and is capable of giving very foolish answers when he is asked to indicate them; and it is equally clear that even the psychologist cannot depend upon so coarse an instrument as direct introspection in the ultimate analysis of mental complexes, and has no right to say offhand just what elements they do or do not contain.

Hence, it is no refutation of the preceding account of the content of consciousness merely to adduce the experience which we call the consciousness of self, and to point to the fact of knowledge. He who accepts that account will maintain that these things are complexes, which may be resolved into the elements he has recognized, and which can only be clearly understood when they are seen to be capable of such an analysis. He will insist that he is not denying the experiences at all, but is merely showing what they really are, and is clearing away needless obscurity and misconception. It is, of course, possible to hold that his analysis is an unsatisfactory one. But one who takes this position should not content himself with baldly stating that fact; he should prove it by showing that it does not satisfactorily adjust itself to our knowledge as a whole; and he should likewise show that what he has to offer in place of it does not contain what is incomprehensible and self-contradictory. It is of importance to remark that both parties to the dispute accept such experiences as the consciousness of self and the knowledge of things. The only question at issue is: How are such experiences to be analyzed, or are they to be analyzed at all?

Those who hold that in addition to the elements which have above been recognized as constituting the content of consciousness, there must also be recognized a self or knower, which cannot be resolved into a number of such elements, but must be regarded as something of a quite different kind, lay emphasis upon such expressions as: I see, I hear, I think, and the experiences which they call up. A sight cannot see itself, they insist, nor can a sound hear itself. Thought without a thinker is something incomprehensible. Are we, they ask, to regard it as without significance that we speak of "bringing objects within the focus of attention," "directing" the attention to this or that, or "holding" something before the attention? Do we not in the use of such phrases plainly indicate that there is a something which is busying itself about the objects,

turning, in a certain sense of that word, toward them or from them, summoning them before it or dismissing them as no longer of interest? Such phrases have been freely used in the preceding pages, and it may be asked with what right this has been done, when it is denied that there exists anything that either "brings" objects before it or "directs" attention to them.

Furthermore, and this is perhaps the point upon which the most emphasis is laid at the present day, it is pointed out that consciousness is highly complex, and yet our knowledge may be said to possess a certain unity. Colors, sounds, tastes, touches, memories — why does not every element of these exist absolutely by itself and for itself? Why does each stand in relation to other elements and help to form a whole? Things are *known together:* we run over many elements in succession, and then group them as a total: we do not lose one in gaining the other, nor does one take the place of the other; they exist in our thought side by side, and constitute its parts. Two sensations in the mind of one man *belong to* each other in a very different way from two sensations each of which exists in the mind of a separate man. Whence the difference? Does it not seem as if the mind itself gave this unity to its contents, knit together elements which would otherwise fall hopelessly apart, if, indeed, they could exist at all? Must not some principle of unity be assumed, if the coexistence of things in any fashion is to be rendered comprehensible?

To some of these questions it is not possible to give a complete answer at the present stage of our discussion. But it is sufficiently easy to point out that the assumption of a "knower" to perform the various functions indicated above is a gratuitous one, and rests upon misconception. Any principle or agent the existence of which is assumed in order to account for certain experienced facts should really account for them; that is, it should be capable of making comprehensible the manner of their occurrence. It will not do to make the facts their own explanation, to assume the existence of an agent whose whole being is, as it were, a shadow cast by the things it is assumed to explain. It was thus that "occult" qualities were once assumed as the explanation of observed phenomena; that the possession of a "dormitive virtue" was made to account for the soporific properties of opium. It is thus that mental "faculties" of various kinds are still used in some quarters to explain the divers sorts of mental phenomena. How the dormitive virtue of

opium brings about its results, and how mental "faculties" produce their effects it is not pretended to explain. It is simply assumed that they are the causes of the phenomena under observation; and since all occurrences must, in the nature of things, have adequate causes of their existence, it is assumed that these causes must be adequate to produce these effects. It is evident that any such explanation adds no whit to our knowledge of the thing to be explained. It is, as has been said, nothing more than the shadow cast by the fact itself.

If, therefore, we are to assume the existence of a "knower" or "self" distinct from the elements recognized in the preceding pages as constituting our consciousness, we must be able to prove that we are not dealing with a shadow of this kind; we must show, and not merely say, that such a self can perform the functions attributed to it. We must, in short, have something to stand upon other than the mere facts it is desired to explain.

Here it may be objected that we have at least the existence of the self given in consciousness, whereas no one pretends to perceive directly either the dormitive virtue of opium or the mental faculties distinct from the various classes of mental phenomena. And it may be maintained that if this be so, even if we cannot describe in detail how the self knows things and does things, we can at least assert with confidence that it exists, and is somehow concerned in these operations. Such a fact alone would be enough to take it out of the shadowy realm of occult qualities, and make our explanation, if incomplete, at least something more than a mere tautology.

But it should be borne in mind that the very point in dispute is the existence in consciousness of such a self as is here claimed. Were the self a something in consciousness that stood out vividly, as do material objects which we examine under a good light, the quarrel would be settled at once. That it is not something which can be thus inspected, any one can satisfy himself by attempting to get a good look at it and to describe it. Its indefinite and elusive character is abundantly evidenced by the efforts which have been made by philosophers and psychologists to give a satisfactory account of it, and by their attribution to it of incomprehensible and contradictory qualities. It is very clear that they have been groping in the dark, and have not been describing something seen under a good light. Hence, the existence in consciousness of such

a self as is described above must not be assumed at the outset, but must be reached, if at all, as the result of a process of reasoning. It must be shown that the assumption is a reasonable one, and that by the assumption of such a something in consciousness we can explain *how* attention is directed to this or that, *how* diverse elements in a consciousness are held together in a certain unity.

This demand is not met by those who assume the existence of the self under discussion. Their assumption is not a purely gratuitous one, and it can be given at least a psychological explanation, as will be shown below. But it does not really explain any of the facts it is desired to explain, and on examination it proves to be no better than the assumption of "occult" qualities.

For example, although it is insisted that this self *knows* the other things in consciousness, it is not in the least indicated *how* it knows them. What is its knowledge, and wherein does it consist? The thing known is what it is, and the knower is what it is. They are distinct and different; what is the bond which unites them? Is the knowledge something distinct and different from both knower and known? What manner of thing is it, and how shall we represent it to ourselves? If one thing can know another different from it, what nature must it have in order to exercise this function? Why cannot one sensation know another, or a picture in the memory know an emotion? Can we represent to ourselves with *any* degree of clearness some element[1] in consciousness which stands to the other elements in a wholly different relation from that in which they stand to each other? Can we endow it with some attribute which will make comprehensible its activity in *knowing?*

To all such questions we receive no answer. The whole subject lies buried in Egyptian darkness, and we are forced to content ourselves with words and phrases, with mere repetitions of the statement that the knower does know. When we are told that the walker does walk, it means something to us; he possesses legs, and his activity is not incomprehensible. But the knowing of the knower remains something occult; it lies in a well so deep that there is no evidence that truth is to be found at the bottom.

So it is also when we weigh the phrases which are used to indicate the movements of the attention. That some elements in

[1] As the reader may see, I use the word "element" here in rather a loose sense; I found no argument upon the mere word.

consciousness stand out more vividly than others, and that there is constant change in this respect, we know by direct observation. But when we speak of "directing" the attention or "holding" something before the attention, do we mean to indicate that one element in consciousness, the self or knower, is perceived to be treating another element in some definite way? The phrases have, of course, their origin in a material analogy. A man holds an object before him in his hand when he wishes to look at it; he turns his head and directs his eyes toward another object which he wishes to examine. But these are bodily movements, and serve only as a rude image of the peculiar activity attributed to the knower. What is the nature of that activity? How does the self in consciousness make some elements advance into a position of greater prominence and others retreat into obscurity? We are granted no hint of the nature of its activity, and it appears to be assumed that it can do such things, for no better reason than that such things do happen.

Finally, we ask, how does the knower, an element in consciousness among other elements, hold things together and create a unity in diversity? If this knower is any way composite, it is fair to ask what holds its parts together; and if it is not composite, but exists as a simple element of some sort in consciousness, we may well inquire what means such an element possesses for holding together other elements different from itself. Hands it has not; and mere material analogies will not serve to make clear the method of its procedure. How can a self hold together colors and sounds, any better than a sensation of touch can hold together tastes and smells? Can even the faintest hint be given of what it is to thus hold things together? If it cannot, it is very clear that we are dealing with mere words, and are not in the least explaining the unity of consciousness and the knowing of things together. In reasoning thus we are first assuming that an explanation is necessary, that things would not stay together unless held together, and then taking refuge in an occult quality as furnishing the explanation desired; in other words, we are simply making a fact to be explained, its own explanation.

It seems odd that reasonings so loose should impress any thoughtful person as worthy of acceptance, but, as has been indicated, it is possible to give at least a psychological explanation of the fact that they carry conviction to many minds. Their influ-

ence is not incomprehensible when we reflect upon the genesis of the traditional knowing self that has been such a stone of stumbling to the speculative mind.

It is generally accepted among psychologists that, at an early stage of the mind's development, the chief constituent of the notion of the self, and perhaps the only one that stands out with sufficient clearness to occupy the attention, is the idea of the body. When the child says, "I see," "I hear," "I feel," he is not thinking of the self of the philosophers, but is recognizing the fact that, given his body in such and such a relation to other objects, he has certain experiences. His body stands over against other objects and is distinguished from them. It sees with its eyes, hears with its ears, feels with its hands. It not only sees, hears, and feels other objects, but also sees, hears, and feels itself. It perceives not merely that it is acted upon, but also that it acts upon other things, bringing about changes in them. It is the constant factor in experience, while the objects with which it occupies itself succeed one another in a more or less rapid succession. Moreover, it is an interesting object, with which are bound up in a peculiar manner the pains and pleasures of the individual. No wonder it becomes the centre of the little world in which it has its being, a world concrete, unreflective, external, if I may be permitted to use this relative word when the correlative cannot as yet be regarded as having made its way into the light of clear consciousness — at least a world objective and material in the sense that what comes later to be recognized as objective and material almost wholly constitutes it. And from the crude materialism of the infant mind to the crude animism of the savage the step is but a short one. That duplicate of the body, which in dreams walks abroad, sees and is seen, and acts as the body acts, has simply taken the place of the body as knower and doer, and its knowing and doing obtain their significance in the same experience. The thought of the child is duplicated in the new world opened up by the beginnings of reflection.

Now, I believe that the student of the history of philosophy who is able to read between the lines can see in the highly abstract and inconsistent self of the later philosophers a something that has grown by a process of refinement from these rude beginnings. We find early in the history of thought a material soul which knows things by contact with the effluxes thrown off from mate-

rial objects. It is an object among other objects, as is the body, and the nature of its knowing is clearly analogous to that of the body. We have, later, a soul in part fettered to the body, and, as it were, semi-material. We have, finally, a soul abstract and unmeaning, a shade, a survival from a more concrete and unreflective past.

It would be wearisome to attempt anything like an exhaustive examination of the opinions of philosophers, ancient and modern, in support of the above assertion, but a mere glance at a few of them may not be out of place. The philosophers have recognized, almost from the beginning, the distinction between that which knows, the mind, soul, or reason, and thing known, which may be either an external thing or a psychical state.

It is difficult to select from among such a cloud of witnesses, but I may mention, in passing, among the ancients, Anaxagoras, Democritus, Plato, Aristotle, the Stoics, the Epicureans and the Sceptics, in all of whom the distinction is sufficiently emphasized. Thales doubtless distinguished in an unanalytic way between himself and the objects of his knowledge, but in what little we know of his doctrine, his ideas upon this subject do not come to the surface. Perhaps the problem of knowledge had not presented itself to him as a problem. With the progress of reflective thought it comes more and more into view, and the knower grows, I cannot say more definite, but at least more definitely an object of discussion. At the same time the knower grows on the whole less concrete and material, though the chronological order and the order of logical development do not absolutely coincide. This is easily seen when one compares the teachings of Anaxagoras and Democritus with what Plato and Aristotle have to tell us of the nature of the mind. The distinction made by the latter between the reason and the lower psychical functions has a flavor of the modern distinction between the rational and the empirical self, a topic upon which we shall have occasion to dwell a little below.

It is not necessary to enter into detail in speaking of matters so familiar as these to students of philosophy. It is sufficient to remind them that the impression which the Greek philosophy as a whole makes upon the modern mind, notwithstanding the development which it took in the hands of Plato and Aristotle, is that it represents the thought of a people to whom it was not unnatural to think of the mind as a breath, a fire, a collection of

atoms, — a something not widely different from the body, and the relation of which to the objects of its knowledge was essentially similar to that which obtains between the body and the objects which surround it. And it is well to remember that, even when Aristotle has endeavored to purge his notion of the Divine Mind, the First Cause of Motion, of all material elements, he can still conceive of it as *touching* the world, although it remains itself untouched.[1] It sets the spheres revolving, after all, in somewhat the same way in which the Nous of Anaxagoras sets in motion the little particles which are by their combinations to form a world.

Such a conception of the nature of the self or knower does not appear very different from that entertained by one who has gotten so far as to distinguish between mind and body, but has not reflected much upon his conception of mind. To be sure, we moderns are not in the position of the ancient Greek. There has been much speculation upon these matters since, and the fruits of this speculation have to a great extent become common property. Even the plain man has heard the soul spoken of as immaterial, and he is apt to repudiate with energy all talk of identifying it with atoms, or attributing to it extension in space. Nevertheless, he conceives it as in some vague way within his body, and *present to* the objects of its knowledge. When he has learned something of the impressions made upon the sense-organs, and of the knowledge of things through representative images, his doctrine may justly be regarded as merely a refinement of the ancient doctrine of effluxes from objects, which penetrate to the mind through the avenues of the senses. Whatever inherited and contradictory forms of expression he may use in describing the mind, he nevertheless thinks of it as a thing among other things, present to them in somewhat the same way in which the body is present to the objects upon which it directs its eyes; and when he speaks of the mind as knowing, it is this latter experience that gives its content and significance to his thought.

He does not take quite seriously the refinements of later speculation, for, indeed, they cannot really be taken very seriously. They can be assented to only in words. As early as Plotinus the soul or subject of knowledge has definitely put on the incomprehensible aspect with which later speculation so constantly clothed

[1] Gen. et Corr., I, 6, 322, b, 21. See also Zeller, "Die Philosophie der Griechen, Aristoteles und die alten Peripatetiker," Leipzig, 1879, pp. 357, 377.

it. It is not in space; or rather it is in space in an unintelligible and inconsistent way; it is all in the whole, and yet all in every part of the body. It is divided because it is in all parts of the body, and undivided because it is in its entirety in every part.[1] With Augustine, who set his stamp so authoritatively upon the thinking of the centuries that succeeded his own, it behaves no better, being still all in the whole and all in every part of the body.[2] It knows itself and what is not itself. Its properties are not related to it as material qualities are to material substance; they share in its substantiality, although it *has* them, and must not be regarded as *being* them. The knowledge of the mind extends beyond the spiritual substance. Objects of sense become known because they are *touched* by the various senses. Material qualities, on the other hand, are coextensive with the substances in which they inhere, and they fall within the same limits.[3] To make this confusion, if possible, worse, Cassiodorus maintains that the soul, which knows things spiritual and material, is, as a whole, in each of its own parts.

It is, of course, impossible for any human being to represent to himself so inconsistent an entity as a soul of this description. If he asserts that he believes in it, we must charitably suppose that he thinks he does so, and must then endeavor to find out for ourselves what is really in his thought. In many instances it is possible to discover the motive which has lead serious men to make statements so fantastic, and seemingly so arbitrary. In the endeavor to distinguish clearly between mind and body, they have gotten farther and farther away from that primary experience in which the body plays so important a part, and which furnishes the first foundation for the idea of one thing standing over against another and knowing it. But it is clear that they have not eliminated this wholly from their thought. They make the mind, as it were, an inconsistent little body, an ill-behaved atom, which is in space and yet not exactly in space; present to things, and yet not present to things as bodies are present to each other. This makes it and its knowing something very vague, but there is present at least a suggestion, drawn from experience, that prevents the sentences used to describe them from impressing the mind as a quite meaningless form of words.

[1] "Ennead," IV, 2, 1. [2] "De Trinitate," VI, 8.
[3] "De Civitate Dei," IX, 5–8; "De Trinitate," X, 16; XII, 25; X, 4.

In the scholastic philosophy we find much the same conceptions as in the period preceding it. Everywhere there is acknowledged a knower and a known; and this knower, which knows both itself and what is not itself, and may even know itself more certainly than it knows external objects, remains throughout a mystery and a perplexity. And in the modern philosophy, until we come to Hume, the problem of knowledge remains much what it was before. With Bacon, Hobbes, and Descartes the mind is still the knower, and a vague and shadowy knower.

It is interesting to see that Descartes, who announces an intention never to be governed in his thinking by tradition and authority, and a determination to accept as true only what he clearly and distinctly perceives to be true, nevertheless held to the vaguely and inconsistently localized soul of the Schoolmen and their predecessors. He places the soul, it is true, in the little pineal gland in the midst of the brain; but for him that is only its "chief seat"; it is, so to speak, *thickened down* at that point in the body, but it retains its nebulous scholastic diffusion throughout the body notwithstanding its predilection for this convenient spot. It is like a divinity which can best be influenced by supplication at a given shrine, but whose sphere is not circumscribed wholly by it. Still, the reader of Descartes must feel, that even this half-hearted attempt to place the soul somewhere, in an intelligible sense of that word, is a move in the direction of an earlier conception, and, hence, a move in the direction of intelligibility. It at least means something to speak of this or that as in the pineal gland; it does not really mean anything to speak of it as in its entirety in several places at once. And he must also feel, I think, if he be one of those who must have the traditional knower, that a localization in the pineal gland seems to make it more comprehensible that a knower should actually know things. Did not Descartes provide for the delivery of all sorts of messages to it at that little central office? Do not things to be known come to the knower?

The position taken by Spinoza is especially interesting and suggestive. The mind he regards as the "idea" of the body, as that mode in the attribute thought which corresponds to the body, a parallel mode in the attribute extension. Mind and body do not interact; they merely correspond, since they are aspects of the one thing. Man is a physical automaton with parallel psychical states. The mind is a complex of ideas, and may be called the knowledge

of the body. But there is also such a thing as the idea or knowledge of the mind. We not only know things, but we know that we know. How shall we conceive this knowledge? Spinoza maintains that this knowledge of the mind is related to the mind precisely as the mind is related to the body. He finds it impossible, it is true, to keep this "idea" of the mind distinct from the mind itself, since they are both modes in the one attribute, thought, and are not different modes. He first distinguishes them and then lets them melt into each other.

His doctrine is not consistent, but its purpose is clear. It appears to him that knowledge demands a knower and a known, and he cannot conceive the knower as playing the part of both. He therefore explains the mind's knowledge of itself by splitting it into a fictitious duality, which fades again into unity. He thus rids himself of that inconceivable chimera the "subject-object," which knows itself; and his thought retains a sufficiently vivid suggestion of that experience from which our notion that one thing in our experience can know another is drawn. It is interesting to remark that to Spinoza the mind is composed of ideas; it is not a something distinct from them and behind them; and it is not localized in the inconsistent fashion which obtained in Scholasticism and in the philosophy which preceded it.

In Locke there appears again the ambiguous double self, the substance or substratum, and the qualities or attributes in which it makes itself manifest. It is the latter that we directly perceive; the former remains "an uncertain supposition of we know not what," but to which is attributed the function of holding together the ideas. Berkeley, the Idealist, basing himself upon Locke's conclusions, classifies the objects of human knowledge as ideas of sense, ideas of memory and imagination, the passions and operations of the mind, and the self that perceives all these. Those who are familiar with the "Principles" will remember that even Berkeley's clear and graceful sentences leave the reader's mind in a hopeless confusion regarding this last object and the nature of its relation to its own ideas.

It is clear that none of the above doctrines give any hint of *how* the knower is able to know things, or what sort of an activity knowing may be. They simply assume that there is a knower that knows; and, however fantastic may be their descriptions of the nature of such a being, they all appear to rest ultimately upon

the experience which I have adduced as the most probable explanation of the whole notion of things knowing each other. It is not without significance that the act of knowing appears to grow more and more unintelligible as the knower becomes more refined and sublimated. But before proceeding further it is desirable to mark certain distinctions of much importance to clear thinking, but which were not so clearly marked as they might have been, or at least were not given due weight, in the mediæval and in the modern philosophy down to the period at which we have arrived.

Leaving out Spinoza, the writers whom I have cited appear to recognize, explicitly or implicitly, a dual element in the self or knower. It is a substance or substratum with certain properties or attributes. Locke dwells at great length upon this distinction, and concludes that the properties of the knower or self may be known immediately — they are elements in consciousness, or, as he expresses it, ideas of reflection. The "substratum" self he banishes to outer darkness, and after proving that there is no conceivable way by which we can arrive at a knowledge of its existence,[1] he assumes it to exist, by an act of violence.

He maintains, moreover, occupying, as he does, what we have called the psychological standpoint, that our immediate knowledge, in so far as it is not a knowledge of self, is a knowledge merely of sense-ideas, or representative images of things. The things themselves lie beyond these and can only be known to exist by inference. Berkeley, his successor, denied the justice of such an inference; and while holding, apparently, to a self not very different from that put forward by Locke, refused to recognize Locke's external things at all. Hume, that astute and admirable analyst, applied Berkeley's argument to the "substratum" self as well as to external things, and concluded the self or mind, and by this he means to include all that is immediately known, to be "but a bundle or collection of different perceptions which succeed each other with inconceivable rapidity, and are in a perpetual flux and movement."

Whatever may be thought of the conclusions arrived at by these philosophers, it will be admitted that we have here at least a clear recognition of the distinction between immediate knowledge and mediate, facts of consciousness and that which may be inferred from them. This is in itself a great gain. The question

[1] "An Essay concerning Human Understanding," Book I, Chapter IV, § 18.

of the existence or non-existence of substrata of any sort is seen to be a legitimate subject for investigation; but it is accepted that anything not directly found in consciousness must be indirectly proved to exist, and that the proof furnished must ultimately rest upon what is directly given in consciousness.

When one reflects upon the illustration of the prisoner in the cell, and when one realizes what it is to know things mediately and through a representative, one is prepared to realize the importance of the distinction between *phenomena* and *noumena*, between what can appear in consciousness and what is by hypothesis debarred from being thus known by any possibility whatever. One is also prepared to follow Kant in banishing noumena from the realm of things knowable; indeed, one is prepared, if one be consistent, to go further than Kant, who appears to the unbiassed reader of the "Critiques" to have done much the same thing that Locke did, to have denied that certain things could be known, and yet to have refused to quite let go his hold upon them. His hold, however, is so slight a one, and it is so manifestly in contradiction with his principles to retain any hold at all, that it may be assumed for the purposes of this discussion that he repudiated noumena altogether.

Kant shuts up psychology to the world of experience, the phenomenal world. He is not, however, content with Hume's "bundle" of perceptions, but distinguishes between the multiplicity of psychical elements forming the content of consciousness and a something, — not a noumenon, but a something in consciousness, — an activity, or whatever one may choose to call it, which makes possible the combination of this multiplicity into the unity of a single consciousness. On this depends the consciousness "I think" which accompanies all my ideas. The *empirical* self, as a complex of psychical elements, is to be distinguished from this *rational* self. This doctrine has had, and still has, so deep an influence, that it is especially worthy of note in any historical sketch of the self as knower.

The distinction between the empirical self and the rational has been taken up into modern psychology. The former is a mental complex which has been analyzed and discussed much as one analyzes and discusses any other mental content. It may, it is true, be difficult to enumerate the elements of which it is composed; but the attitude of the psychologist toward it is sufficiently definite, and the only mystery that the subject presents is the mystery of incomplete knowledge.

In discussing it the psychologist at least means something. He applies the scientific method, aiming at and hoping for clear and exact results. He is dealing with sensations and memories, and with nothing occult and incomprehensible. Even those psychologists who emphasize most strongly the need of a "knower" to explain the facts of our mental life, sometimes find in this empirical self such elements as the idea of the body, the idea of personal possessions, muscular sensations of various sorts, and, indeed, just those things which we all recognize as making up our experience, which we do not think of as knowing themselves, and which some of us assume there must be a knower to know. This empirical self is admitted to be highly composite; it is what a man has in mind when he thinks of himself as such and such a personality, as being different in capacity, training, character, and past experience from some one else. It was the identity of this self that was a subject of doubt, and needed to be established, in the case of the old woman who awoke with curtailed skirts: —

> "If it be I, as I hope it be,
> I've a little dog at home, and he'll know me."

It seems absurd to lay upon such a self, so constituted, the burden of performing the traditional functions of a knower. How can it know anything, unless all sorts of elements in our experience can know all sorts of others? And how can it hold anything together? It is, at times, not even successful in "staying together" itself, as is clear from a study of those morbid conditions which have been classed together as diseases of the personality, as well as from those temporary derangements of the personality observed in hypnotic subjects. It needs itself to be held together, if anything does.

Kant distinguishes between such a complex and the rational self, which is to do for this complex and for other elements in consciousness what this multiplicity of elements cannot do for itself. He does not make clear what this rational self is, and he gives no indication whatever of the way in which it brings about the results attributed to its activity. His idea was elaborated by his intellectual descendants, a rather numerous body, not entirely at one among themselves, but nevertheless addicted to much the same way of thinking. As the protagonist of these I shall take Professor T. H. Green, although I do not mean to make all neo-Kantians or neo-Hegelians responsible for all of his utterances.

Mr. Green repudiated the Kantian noumenon and avowedly confined human knowledge to the field of experience, but he did not approve a Humian experience consisting of a bundle of percepts. He found it necessary to assume in experience a principle of synthetic unity; a principle not to be confounded with any of the elements making up the experience, nor subject to their conditions; a principle which, in some fashion, knits together the manifold of sense into an organic unity. "Thus," he writes,[1] "in order that successive feelings may be related objects of experience, even objects related in the way of succession, there must be in consciousness an agent which distinguishes itself from the feelings, uniting them in their severalty, making them equally present in their succession. And so far from this agent being reducible to, or derivable from, a succession of feelings, it is the condition of there being such a succession; the condition of the existence of that relation between feelings, as also of those other relations which are not indeed relations between feelings, but which, if they are matter of experience, must have their being in consciousness. If there is such a thing as a connected experience of related objects, there must be operative in consciousness a unifying principle, which not only presents related objects to itself, but at once renders them objects and unites them in relation to each other by this act of presentation; and which is single throughout the experience."

According to this passage, the knowing or distinguishing agent is conscious and self-conscious, is in consciousness, makes a consciousness possible by uniting different elements, and is single throughout the experience. We find elsewhere that this principle is not *in* consciousness but *is* consciousness, and that everything that exists is in it; that it is intelligence; that it is a subject or agent which desires in all the desires of a man and thinks in all his thoughts. Notwithstanding that it is all this, it has, nevertheless, no existence except in the activity which constitutes related phenomena; and it is, in the words of the author,[2] "neither in time nor space, immaterial and immovable, eternally one with itself."

The mere statement of the attributes of Mr. Green's spiritual principle would seem to be sufficient to condemn it. A faith robust enough to remove mountains might well shy at the task of believing that the single subject or agent which desires in all the desires of a man and thinks in all his thoughts, which is con-

[1] "Prolegomena to Ethics," § 32. [2] *Ibid.*, § 54.

scious and self-conscious, is still only an activity without existence except as it constitutes the objects of experience, and which, though it does not exist in time, is equally present to all stages of a change in conscious experience. This means that the activity which constituted my thought of yesterday did not exist yesterday, when my thought did; and the activity which constitutes my thought of to-day does not exist to-day, while my thought does. Both activities are one, for the activity which constitutes objects is "eternally one with itself." What can this mean? If the phrase is to be significant at all, must it not mean that the activity in question is "always" the same activity? and does not "always" mean "at all times"? And what is an "immovable" activity? Moreover, is it fair to a genuine activity, however abnormal, to call it a principle, or subject, or agent?

Mr. Green's utterances are not, in one sense of the word, incomprehensible. His doctrine is not fundamentally new. He has taken the Kantian unity of apperception, made of it an hypostatized activity, tried to keep it free of space and time relations, and used it as an explanation of the unity of experience, or, as I should prefer to say, of consciousness. He has given us the same inconsistent *tota in toto* soul that we find in Plotinus and Augustine. He is, to be sure, a post-Kantian, and he has included this thing in "experience," but it is no whit more thinkable than it was before.

With all this, Mr. Green has explained nothing. Even if we suppose it possible for an activity to be all that he asks it to be, even to be timelessly present at all times, how are we to conceive of such a thing as uniting the elements of any possible experience? Shall we merely assume that it has a vague and inscrutable uniting virtue, akin to the discredited dormitive virtue of opium? Mr. Green does not even try to show how this activity obtains its result. He does not seek light upon this point by a direct reference to experience, for he does not obtain his activity by direct introspection; he obtains it as the result of a labored process which strives to demonstrate that it must be assumed or experience will be seen to be impossible.

The rational self as treated by Kant and Green appears far removed from the crude bodily self which is to the child the knower and doer, and also from the material or semi-material self that takes its place at the dawn of philosophic thought; but it is not difficult

to see that it appears upon the stage as a successor to these, and undertakes to play the same rôle. As has been pointed out, Kant never wholly abandoned the noumenal self which his doctrine condemned. It lurked in the background of his thought, and perceptibly colored it. In calling the uniting activity which he found in consciousness the rational self, he connected it with the notions which he had inherited from the past. He stands in a certain line of development, and must be regarded rather as modifying old notions than as creating something distinctly new. The same may be said for Mr. Green. He quite discards the noumenal self, it is true, but then he turns the uniting activity into something as incomprehensible, and forces it to perform the same functions. It is a subject or agent which presents objects to itself, is conscious, and distinguishes itself from the feelings it unites. It is somehow "present" to the things it knows.

We have seen that, with this development, the self and its method of knowing appear to become more and more unintelligible. How the self as noumenon or as super-temporal activity can know anything or do anything, no one can pretend to understand. In the successive transmutations through which it has passed almost all reference to the primary experience out of which the notion of a self as knower and doer took its rise has been lost. Were such reference completely lost, it would go hard with the hypostatized abstractions of the noumenalist and the neo-Kantian. As it is, they hold their own and appear not wholly without plausibility, because men really do find in their experience something which seems to speak for them in a certain vague and inarticulate way. They can form no conception of the manner in which a noumenon or a neo-Kantian self-activity can account for their experiences, but they prefer even these to nothing at all; for must there not be a knower? do *they* not really *know?*

Their position is one quite easy to understand. It is not exclusively to the childhood of the individual or of the race, that we need go to find the body an important element in the self-idea. The developed man has much the same experience as the child, and instinctively interprets it in the same way, although reflection has furnished him with the means of correcting this instinctive interpretation. When, therefore, he speaks of perceiving himself among other objects, he has a more or a less immediate reference to an experience which he and others constantly have; and uses

a certain expression to call attention to that experience. His thought may be highly nebulous and his attempts to describe it incoherent. Still, he means something, and it is the duty of the psychologist to show him what he means. Our noumenalist, or our neo-Kantian, thus takes his stand upon an experience, though he misinterprets it. He draws from experience the impulse to carry over into a region in which it has no right to exist, the notion of a bodily self. He refines this notion, he purifies it of all that is earthly and concrete, he starves it to a shadow of its former self, and yet he expects of it its former tale of bricks — knowing and doing.

It is worth while to emphasize the fact that the original experience to which we have brought back all forms of the doctrine of the knower, contains nothing which will justify such developments as those which we have been discussing. The consciousness of self is a relatively permanent factor of our experience; and that important constituent in it, the consciousness of the body, is perceived to be a condition of the occurrences in consciousness of other experiences. Should it be objected that, not the consciousness of the body, but the body itself is the condition of the occurrence in consciousness of other experiences, I may answer, that such an absolute separation of the body from the consciousness of the body, as one makes when occupying the psychological standpoint has, in Chapter II, been shown to be unjustifiable. Were the body thus cut off from consciousness, no man could recognize the body as a condition of conscious experiences, or as related to them in any way. The distinction commonly recognized between the body itself and this or that man's consciousness of it, cannot be made clear without a detailed examination into what is meant by an external world and by minds related to it. For the present, I shall content myself with asserting that the distinction, when properly understood, is seen to be a distinction within consciousness. I shall say, in accordance with this doctrine, and without more narrowly defining the significance of the statement at this time, that the body — a something of which we are conscious — is perceived to be a condition of our having other experiences. By this I mean that we perceive that when we close our eyes, we cease to see the colors of surrounding objects, and when we reopen them, we again have such experiences; that when we raise our hand from the table before us, we cease to feel

it, and when we lower it again, we feel the table once more. These and many others of a similar nature are experienced facts, and it is natural that we should be influenced by them to connect the thought of the body with the thought of other experiences of all sorts.

But the fact that one group of experiences is observed to be a condition of the appearance in consciousness of various others, should not be made more mysterious than it is. The group of experiences we call the body does not "hold together" our experiences as a whole, as the knower has been assumed to hold together all the things that it knows. It constitutes, to be sure, a central point in our experience; other things come to be grouped around it, and related to it. But all this gives us no such new and occult relation as has been imagined between knower and known. The body remains a complex in our experience, and we have before us the perfectly intelligible task of marking the precise nature of its relations to other complexes or to single elements, much as we mark the relation of any element to any other. We have no good excuse for speaking inconsistently or growing incoherent.

Again: the body is made up of parts, and the parts of things may intelligibly stand in relations to each other, as well as may whole objects. A hand can touch its fellow; the eyes can, as we say, see the hands and the feet. Thus the body may, in a loose sense of the words, be said to know itself, to be the condition of its own appearance in consciousness. The expression is inaccurate and rather misleading, but it must not be set aside as wholly unmeaning; it is based on experiences which can be described in detail.

But when we get away from the notion of the bodily self, put in place of that a noumenon or a super-temporal activity, declare it to be an *absolute unit*, and then maintain that it *knows itself*, we fall into mere incoherence. There is nothing whatever in our experience which can serve to make intelligible to us the significance of such a statement. The man who maintains that one thing knows another, may admit that he does not know clearly what this relation of knowing is, but may hold that it is a relation of some sort between two things. Certainly the relations between things may be of many sorts. But he who is capable of positing a relation of any kind between a thing and itself, is capable of

maintaining seriously that one man may look alike or may walk in single file.

It is merely playing with words to attempt to split any one thing into the thing and itself, distinguishing the two as knower and known, and at the same time asserting that knower and known are not really two but only one. The subject-object of the old psychology, the self as self-knower, is a monstrosity. It needs but a moment of unprejudiced reflection, it seems to me, to see that what is said about it is absurd and unmeaning. The only question of real interest is: How have men come to speak in this way? The answer has been given above, and it seems a sufficiently plausible one. A notion derived from experience of the body is carried over into a realm in which it wholly loses significance, and it is held on to notwithstanding this fact.

In the preceding pages three different selves have been distinguished from each other and subjected to criticism; they are the self as noumenon, the self as a group of phenomena in consciousness, and the self as the neo-Kantian self-activity, whatever that may mean. Were we discussing any other subject, it would seem a work of supererogation to endeavor to show that these should not be confounded with each other. But here such confusion has reigned that it cannot be out of place to emphasize the truth that a noumenon — by definition a something which cannot by any possibility enter consciousness — cannot be strictly identical with a group of elements in consciousness; and that neither of these can be strictly identical with a unitary activity which is supposed to hold together the divers elements of which a consciousness is composed.

When a man talks about the self, therefore, he should know clearly to which of the three he refers. They are evidently not one, and they should not be treated as one. They are not only numerically distinct, but they are not even conceived to be similar; and to the question why they should be given the same name and thus put into the one class, no answer save an historical one seems to be forthcoming. Those who hold to the existence of all three or of any two of these are apt to identify them loosely with each other, and to pass in their reasonings from the one to the other without clearly marking the transition. Such a procedure evidently is born of and gives birth to confusion of thought.

The preceding pages have, I hope, made it clear that the nou-

menal self must be thrown aside as a mere figment of the imagination, as an entity the real existence of which cannot be proved by any legitimate evidence based on experience, and one which furnishes no real explanation of anything. Its loss can cause no annoyance to the man who realizes what it is, and distinguishes between the three selves we have been discussing.

It can surely matter nothing to me if an "I" of which I have, by hypothesis, never been conscious and can never be conscious; an "I" which is not the "I" that I perceive myself to be and that I distinguish from other selves; an "I" so different from the "I" of which I am conscious that its bearing the same name can only be explained as due to a misapprehension; an "I" which accounts for nothing in my conscious experience and, indeed, turns out upon examination to *be* nothing but a name for an unknown — it can surely matter nothing to me if such an "I" be divested of the misconceptions which appear to give to it a semblance of substantiality and be made to appear the unsubstantial cipher that it is. He who clearly realizes just what is meant by the noumenal self, who sees how completely it stands outside the circle of his actual and possible experiences, and how totally without significance it must be for them, can have no sense of loss in the discovery that it must be discarded.

But it is not easy to strip off inherited misconceptions, and such reflections as are contained in the preceding pages are apt to bring to many a sense that they are being defrauded of something, a feeling that the self that is left them is little better than a hollow shell, without substance and without true reality. The feeling is a vague one, and cannot justify itself in the face of analysis, but it is rather persistent. Its disappearance can only be brought about by substituting a habit for a habit — the habit of clear thinking, for the habit of thinking loosely and vaguely.

As to the shadowy successor of the old noumenal self, namely, the self as timeless self-activity, that must evidently be rejected also. And since it is the only self brought forward as a something in consciousness or in experience to be set over against all else that is in consciousness, and as being different in nature from all the elements indicated in the preceding chapter, its rejection leaves us only what has been called the empirical self as a proper subject of investigation for the psychologist and the metaphysician.

That the investigation of the nature and constitutive elements of

the empirical self is no easy task has already been made clear, but it is equally clear that the task is not in its nature a hopeless one. It does not differ in kind from the task which confronts us every time that we undertake to obtain an analytic knowledge of any complex in consciousness. This is true no matter what aspect of the empirical self we are concerned with. When we say, "I know," "I think," "I feel," these expressions indicate the presence of certain complex states of consciousness. When we say, "I know myself as knowing," "I think about myself," etc., we indicate the presence of conscious states in some respects different from those above mentioned. It is the duty of the analyst to try to substitute for the vagueness which usually characterizes the recognition of these states of consciousness and their differences from each other some degree of clearness and definiteness.

Much has been said, and much is still said, about the unity of consciousness. Undoubtedly, the thought of one man as knowing two things and the thought of two men as each knowing one thing are not to be confounded. When we speak of "a mind," we mean something, and it is perfectly just to seek to know clearly what we mean. But it is one thing to find in consciousness a unity and to endeavor to determine with definiteness what is meant by the unity of consciousness; and it is another thing to attempt to explain how the unity of consciousness is brought about, by the assumption of hypothetical entities not to be found in consciousness, or by ascribing inconceivable virtues to hypostatized spiritual activities. Hence the rejection of the two selves which we have weighed and found wanting, the noumenon and its post-Kantian successor, need not in the least compel us to deny to consciousness a certain unity. It is merely the rejection of two unsatisfactory attempts to explain how that unity has been brought about — attempts which not only fail in the aim which they have set before them, but which leave untouched the much more important problem of what manner of thing the unity of consciousness actually is. To this problem nothing but a careful analysis of our experience can furnish a satisfactory answer.[1]

[1] See Chapter XXIX.

PART II

THE EXTERNAL WORLD

CHAPTER VI

WHAT WE MEAN BY THE EXTERNAL WORLD

THE word "consciousness," taken in the broad sense, embraces every element of our experience and all combinations of such elements. That it is impossible to pass, in any intelligible sense of that word, beyond this realm, we have already seen.[1] We cannot, of course, know directly what is outside of our experience, and an examination of representative or symbolic knowledge reveals[2] that it is impossible, by putting together consciousness-elements, to construct something truly representative of an external world supposed to be of a quite different nature — of a world which in no sense belongs to our experience or forms a part of it, but lies over against experience as a whole, and is contrasted with it.

But if we take the word "consciousness" in a narrower sense, if we think of a consciousness as the particular group of experiences forming an individual mind, there is nothing to prevent us from distinguishing between consciousness and an external material world standing over against it, nor is there anything to prevent us from distinguishing between one consciousness and another. We certainly mean something when we speak of a world of matter and contrast it with the world of minds; and we are not talking mere nonsense when we say that we think of this man or that as thinking this or that.

These modes of expression denote real distinctions within our experience; distinctions that may be, it is true, imperfectly apprehended, as much that belongs to our experience may be imperfectly apprehended, and may even be seriously misinterpreted.

[1] Chapter II. [2] Chapter III.

Such a misunderstanding has arisen when one accepts as final the psychological doctrine of the isolation of the mind, of a knowledge of things external solely through representative images. That this doctrine must have its origin in a misapprehension becomes quite clear when we develop its consequences. But if we avoid such logical shipwreck by holding fast to the thought that those distinctions which we are discussing are distinctions within our experience, that we are in some true sense of the word *conscious* of them, we may regard it as a difficult, but we need not regard it as a hopeless, task to give a reasonably clear and satisfactory account of them.

It is merely a question of drawing a vague and indefinite state of consciousness into the light of definite and analytic knowledge. We all know vaguely — it may be very vaguely, indeed — what we mean by an external material world; and we all know dimly what we mean when we speak of our own or of another mind. These expressions are not mere noise to us; the conceptions for which they stand we can use, and we do use, more or less intelligently.

The metaphysician should strive to bring us to a better understanding of what we actually have in mind when we use them. It ought to go without saying that we have a right to expect from him, when he undertakes to prove anything, the same sober conduct that we expect from other men who undertake to prove things. He must observe the ordinary logical rules; he must not speak unintelligibly, and he must not contradict himself. He must begin with the somewhat dim and unsatisfactory knowledge which characterizes unreflective thought, and he must really accept the fact that it is dim and unsatisfactory. He must not assume at the outset that he is already provided with the information which he sets out to seek, and is already in possession of an array of "intuitions," "necessary truths," "first and fundamental truths," and what not, that it is only necessary for him to describe at leisure. He who adopts this latter method of procedure does not really describe the ultimates which he assumes; he merely enumerates them. He does not analyze, for he assumes that he is dealing with unanalyzables. He remains upon the plane of the common understanding, or, at most, only skirmishes a very little beyond it. His writings are apt to be peculiarly satisfactory to the plain man, for the good reason that the latter, in following him, is not compelled to pass beyond his usual modes of thought. He remains the man

he was, even when he becomes a philosopher — which seems a gain counterbalanced by no corresponding loss.

To those who feel themselves attracted to this common-sense philosophy, which recognizes the distinctions with which the metaphysician should occupy himself — such distinctions as those between the mind and the external world, one consciousness and another, appearance and reality — but which contents itself with recognizing and emphasizing these distinctions, and refuses to analyze the conceptions which it employs into their component elements; to those who feel themselves attracted to this philosophy, I earnestly recommend reflection upon the lesson to be drawn from the experience of that remarkable man Descartes.

We may see in Descartes a shining illustration of the fatal ease with which a critical mind, not a weak one, may gulp down into itself, and assimilate, without inconvenience, doctrines which appear to a later age questionable or even preposterous; and may be led to do this for the one reason that it is accustomed to these doctrines, that these ways of conceiving things fit it like an old glove, and it can see in them nothing to criticise. Descartes began with the resolve to repudiate all his previous opinions, and to take back only such as could really justify themselves before the impartial tribunal of his reason. But when he had cleared the room of all occupants, and opened the door for the admission of the elect, there entered unchallenged (*ex uno disce omnes*) a soul whose ticket primarily entitled it to a seat in the pineal gland, but which, not content with so definitely limited a location, insisted upon its right — one inherited from Scholasticism — to occupy simultaneously all the chairs in the room. This right poor Descartes admitted at once; he was accustomed to having souls act in that way, and he expected of them nothing better.

From this and from a multitude of other instances which will suggest themselves to the student of the history of philosophy, it is easy to draw the inference that the fact that certain ways of looking at things strike us at once as natural and reasonable, does not necessarily prove that these are the best ways, and those in which the metaphysician should rest. He who would be a metaphysician should learn to distrust his "intuitions"; for a multitude of things that have passed by this name have been nothing more than somewhat obscure conceptions, familiar and hence acceptable to the mind, inherited from the past, furnishing

important material for investigation, it is true, but demanding analysis and, perhaps, reconstruction.

One does not become a metaphysician by simply falling back, for example, upon our "intuitive" (which here means "unanalytic") knowledge that there is an external world, and that we must distinguish between matter and mind. One may say this over and over again at great length, and yet not add a whit to the clearness of our comprehension of the nature of these things. And if the doctrine of the external world, implicit in the thought of the plain man, and rendered somewhat more explicit by the psychologist, contains an inconsistency and needs reconstruction, any metaphysical theory which simply rests in it and defends it, refusing to pass beyond it to something, in a sense, more unnatural, certainly more unaccustomed, must be vitiated by the same fault.

Thus the metaphysician should be willing to adjust himself to new and unaccustomed ways of looking at things, provided that his reasonings, in which repeated examination can discover no unsoundness, seem to conduct him inevitably to such conclusions. If he has good reason to believe that he has reasoned well, that he has simply analyzed conceptions which all use but few succeed in analyzing, he may console himself with the reflection that those who oppose him do not really disagree with him, but only think that they do so; that they misapprehend both their own experience and his analysis of it; and that they carry within themselves the refutation of their own words. It is to be hoped that he will give a very modest expression to this conviction, which is likely to be found highly exasperating to the opposite party. It is not every one that wishes to meet a sympathy so broad that it is impossible to go around it.

The astute reader will have seen in the preceding pages an apology for the doctrine which I am about to set forth. It is a view of the nature of the external world which, I am glad to think, is not fundamentally new, even though it differs in some details from other doctrines with which the reader is familiar. Possibly some will be tempted to call it, at first glance, idealistic; but this name, with the associations that cling to it, can only lead to a misapprehension of its true nature, and I must beg that the doctrine be allowed to remain nameless, at least until this volume has been read through to the end.

In undertaking an investigation of the nature of the external

material world it is perhaps convenient to begin with a concrete and unambiguous experience. Here is the table before me, an object which I cannot but believe to exist as a part of the system of material things. I see it; I can touch it; it is hard; it is extended; it is colored. It appears to be as real as it is possible for anything to be.

It is, be it remembered, this table before me, the one in my experience, about which I am in the habit of making these statements. When I speak thus, I am not talking about a little copy of such a table in, or somehow connected with, my brain — a representative, which is unlike the real table, but which in some inconceivable way stands for it. As we have seen,[1] both the plain man and the psychologist assume the existence of such a representative and confine our knowledge to it; but neither takes his assumption quite seriously, for he also assumes that we have direct experience of the real table, and his system of reasonings, his whole theory of originals and representatives, and of the relations between them, rests upon this assumption.

The real external table is, then, a something in our experience. It is given in consciousness. When we have said this, we have, to be sure, ruled out a possible source of error, but we have not said very much, for there are various ways in which things may be given in consciousness; and many sources of error are open to the man who fails to distinguish between them. If we simply maintain that the table of which we are speaking is, since it exists in consciousness, a state of consciousness or part of such a state, and rest content with that statement, we seem to obliterate completely the useful distinction between things and our ideas of things, a distinction which, even though it may remain to most of us a sufficiently vague one, nevertheless appears to justify itself by the purposes it serves.

That the plain man and the psychologist are not wholly wrong in insisting upon this distinction it is not difficult to show. They may point out that the actual experience of which one is conscious, the sensation of color which we have when, as we say, we look at a table, may be made to disappear at once by the very simple expedient of closing the eyes. There, at one moment, is the table, vivid, undeniable, an existent sensation or mass of sensations directly perceived; and, *presto!* it is gone, snuffed out, replaced

[1] Chapter II.

by darkness and a memory not to be confounded with the sensation itself. Would any man in his senses declare that the real table ceased to exist when this phantasm dropped into nothingness? Between perceiving a table and not perceiving a table there is certainly a difference, but is it reasonable to assume that the fate of real things is bound up with these fluctuations in our perception of them? And yet, if the table we are conscious of is the real external table, if we are dealing here with one thing and not with two, how can the thing go on existing when we no longer perceive it? Can a thing exist and not exist at the same time? Must not the thing and the percept be somehow separated, if the one is to be taken and the other left?

The justice of the distinction between our perceptions of things and the things themselves becomes clear when we examine with care what we mean by the expression "a real thing"; and at the same time it becomes clear that we are not forced to double the number of things perceived and banish half of them, the real half, to a world unknown and unperceived, a world beyond and outside of our experience as a whole. In other words, it becomes clear that the psychologist is partly right; that he has recognized distinctions that it is important to recognize, but that he has not grasped clearly the whole significance of these distinctions. He has distinguished between things and our ideas of things; but he has left incomplete his analysis of the former conception. If he will complete it, he will find that he may hold to the distinction without on that account being forced to say what is inconsistent, or to dogmatize on the nature of entities for the existence of which he can furnish no unequivocal proof.

We may begin our investigation of the elements which enter into our conception of a real table by marking the following points: —

1. The real table is evidently more to us than this one experience of color-sensations; a very little reflection is sufficient to establish that. It is quite true that I say, "I see the real table," and refer to this experience of colors; but when I examine my thought a little more narrowly, I admit at once that this one experience does not constitute for me the table of which I am speaking. It would be a monstrosity, a phantom table, no table at all, that could be summed up in a single visual experience. It could not be seen from a nearer or a farther point, from this angle

or that, under a good light or in semi-obscurity. Moreover, it could not be touched, and recognized as hard, smooth, furnished with sharp corners and rounded edges, a thing to knock up against, to sit upon, to give forth sounds when drummed upon with the fingers. All these elements enter into our conception of a real table, and although at any given moment some one experience may be more prominently in mind than the others, these others cannot be wholly lacking, or we are not thinking of a table at all. Thus tables, as they enter into our experience, are very complex things. Single experiences of sight or of touch may enter into these complexes, and help to make them what they are; but they cannot be regarded as strictly identical with the wholes of which they are mere elements.

2. It should be observed, furthermore, that when I say, "I see the table," the various elements which constitute the conception are not all present in consciousness in the same way. One experience of color presents itself in consciousness with a certain vividness; it is, as we say, *in the sense*. But all the other experiences of color which enter into the conception must be present, not in the sense but in imagination. It is not possible for me to see all around a table at once, or to view it from different distances simultaneously. And if I merely look at the table, and do not touch it, all those experiences of touch which enter into the conception, and which supplement the experiences of sight, must be present, in so far as they are present, as imaginary elements, and not as sensations. So it may be with any other experiences which contribute their quota to my notion of a real table. I may see a real table before me, and recognize on reflection that I actually see very little indeed, and that vastly the greater part of the total content for which the word stands is furnished by the imagination, not found in the sense.

3. It is possible to go even a step farther than this. We all believe in the existence of real tables at which we do not happen to be looking at any given moment. If this one before me is carried into the next room, I do not, on that account, cease to believe that it continues to exist. It is still for me a real table, but a real table for the time being unperceived. When I am thinking of it, every element in my thought is drawn from the region of imagination. It is, then, as it appears, possible for a real table to exist without being perceived at all; it is merely *conceived*,

thought about, constructed in the imagination. It has its whole being in a region which we are accustomed to contrast with the real world of things, and to which we deny reality of the same kind as that which we attribute to these. If this be so, how can that which is in consciousness be the real thing? Have we not come back to something very like the standpoint of the psychologist?

4. The answer to this question we may defer for a few moments. It is important here to recognize that we do not regard an imaginary table, as such, as a real one. It is not enough to draw upon our past experience of tables, to put together such and such elements, construct for ourselves in thought a table of a given size and color and marked by certain arbitrarily chosen characteristics, and then give it an unperceived existence in this locality or that.

I do not believe the table in the next room to exist merely because the conception of it is in my mind. It is not the part of good sense to embrace this belief for no better reason. I believe that the table in the next room exists, either because I saw it carried in there out of this room, or because some one else has seen it and has told me so; or because, by some other method — perhaps a very indirect method indeed — I am enabled to connect the thought of the table with experiences of the class to which sensations belong, and to recognize that it may be regarded as a representative of a sensational content and, under appropriate circumstances, may even be replaced by such.

My ultimate reference is always to sensation; to sensations which have been experienced, or to sensations which may be experienced. I may lay my hand on the table before me and substitute for the idea of hardness the corresponding sensation. If I am asked to prove that there is a table in the next room, I may either sit still and show from experiences had in the past that this particular conception must be placed among those which are legitimately regarded as representative of sense presentations; or I may, instead, rise and open the door, thus substituting a perception, an actual experience of color, for the thought of such. This reference to sense, implicit in all our affirmations of the reality of things, has been so often pointed out, that it may seem scarcely necessary to emphasize it. It is admitted by men of widely different schools of thought.

But what, after all, is meant by a reference to sensation? How can a sensation be recognized as such?

This problem has been touched upon in an earlier chapter.[1] It was there pointed out that sensations, the class of experiences which Hume called impressions, have as a class a degree of vividness which serves to mark them out roughly from the class of experiences called ideas. But it was remarked, at the same time, that this difference in vividness is not always present to serve as a criterion, and that, consequently, some other mark must be sought, if we are to feel safe in relegating this experience or that to the one class or to the other. Ideas may in certain cases be very vivid and insistent; sensations may be extremely dim and shadowy. A man seen in a dim light is not to be regarded as less real than an actor in a dream, though the latter may stand out very strikingly on the background of his unreal surroundings.

There must, then, be some other final court of appeal if the claims of sensations and ideas are to be determined with anything like an approach to justice. Such a court the psychologist tries to furnish us in distinguishing between mental experiences which are to be regarded as the result of "peripheral stimulation," that is, those which arise when the outworks, so to speak, of our nervous system are thrown into a state of activity; and mental experiences which correspond to an independent activity of the "central" nervous system, those, in other words, which represent brain action which is not a direct response to a message conducted along a sensory nerve.

This distinction appears at first glance to be a convenient one. Perhaps it will really be a very convenient one for some purposes, when we possess a more accurate knowledge than we now do of what takes place in the peripheral nervous system and in the central. But it must not be overlooked that the man who offers us this distinction as the criterion for deciding what experiences are sensations and what are ideas has placed himself upon the psychological standpoint, and has assumed that, in a certain field at least, he already has the knowledge to which his criterion is to help him. How does he know that the body, of whose central and peripheral nervous systems he discourses, is not an imaginary thing, a persistent hallucination? How can he prove his experiences of the body, which are to form the touchstone for testing

[1] Chapter IV.

other experiences, to be of the class called sensational? If he simply assumes them to be such — as he does — and then uses them as the test of other experiences, is he not guessing at half the distance to the sun, and then multiplying by two, to discover how far away the sun really is?

The procedure of the psychologist is not, however, as bad as it looks when set forth in this way. His criterion cannot be accepted as final by the metaphysician, but it may serve a useful purpose nevertheless. In advancing it, the psychologist remains upon the plane of the common understanding, and assumes that certain things may be safely assumed, even if they are not completely understood. We have seen that the distinction between our sensations and our ideas is one recognized in common life, and that it would be extremely inconvenient were these two classes of experience easily and frequently confounded.[1] There is the broad distinction, just mentioned, of a superior vividness, which characterizes our sensations as a class. But even where this characteristic is lacking, and where a mere inspection of the experience itself would leave the mind in doubt as to its proper place, it is possible to apply the only ultimate criterion, a recognition of the way in which the experience *behaves*, of the place among our other experiences which it takes and maintains, and thus to decide upon the class to which it rightly belongs.

This criterion is perfectly well recognized in common life, and it is the one applied in the more exact investigations which obtain in the sciences. It may be very well applied without a clear apprehension of its ultimate nature, and yet with a nice sense of whether given experiences meet its requirements or do not. In other words, it may be applied without being reflected upon. The child soon learns to recognize that the green lion which marches across the ceiling when the light has been carried off, and he has been left to the phantom terrors of a solitary crib, is not exactly like the lion which lives in a cage, and can be seen only by paying admission. The behavior of this lion is too inconsequent. He is real enough to inspire fear, but he is, nevertheless, not exactly real. The presence of the light is enough to exorcise him. And even the man who has no settled opinions touching the existence and nature of ghosts, is apt to think that a ghost capable of being photographed is more real a ghost than the one which can at best

[1] Chapter IV.

only make itself apparent to the terrified rustic at dead of night. We have all our lives been judging our experiences, and arranging them as a result of that judgment. What we see we try to touch; and what we touch we perhaps try to taste and smell. No one approaches mature life without finding himself in a world of things pretty well known, and without settled habits of testing things to find whether they are *real*, that is, whether they belong to that orderly class of experiences which have fallen into a regular system, or whether they defy such an arrangement and must be relegated to a class of a different kind.

Hence it does not occur to the plain man to offer proof that his body is real. He knows that it is, even if he cannot define what he means by the word. He only busies himself with the reality of those things which are still in doubt. And the psychologist, standing upon the same basis, but desiring more accurate knowledge and having forced upon his attention many problems which do not fall within the horizon of the plain man, makes more of a coil about the reality or the unreality of things, but he assumes the reality of his body and of an external world just as confidently as does the former. His proposed method of distinguishing sensations from ideas is a convenient expedient for deciding doubtful cases, but it assumes that the distinction has already been drawn. As I have suggested above, it may sometime turn out to be a very useful expedient, and we have no right to condemn it because the man who uses it remains a psychologist and does not become an epistemologist.

There is, then, but one ultimate method of deciding whether a given experience is to be classed as a sensation or not. We must discover whether it takes its place among those elements of our experience which so connect themselves together as to form what we recognize as the system of material things.[1] It has long been recognized that there is an orderliness in this system which appears to be lacking in our other experiences.

For example, in my present perception of the table before me, I recognize a definite expanse of color, determined as to quantity and quality. I can vary this by changing my position or by chang-

[1] I beg the reader to regard the account of the external world and of sensation given in this chapter and in the next one as a provisional account, which should be supplemented by what is said in Chapters VIII and IX, and also by what is said in Chapters XXIII and XXIV.

ing the position of the table. I can cause it to disappear by closing my eyes. But I cannot bring about any of these changes unless I adopt the appropriate means of effecting the particular result at which I am aiming. These changes in my experience follow upon certain other changes in my experience in a fixed and orderly way; and I must acquaint myself with this order if I wish to control the experiences.

What I have called ideas, on the other hand, do not take their place in this system. Whatever may be the laws which determine their appearances and disappearances, they are not the same laws which are found in the world of sensations. I can perform all sorts of arbitrary operations upon an imaginary table — turn it from black to white, increase or diminish its size, change its shape, annihilate it and recreate it — pretty much as I please; I am free here as I am not free in dealing with sensations. Moreover, when I dismiss an imaginary table from my thought, it really seems to be gone, to be annihilated; while a table that I have once seen and no longer see, I am yet forced to regard as holding some sort of place in the system in which I have accorded it a place. I may still explain certain of my experiences by referring to it, just as if I still saw it. Even if it be broken to pieces or destroyed by fire, I cannot think, when I have once arisen to the conception of a system of real things, that that system is now just what it would have been if that table had not held a place in it. The imaginary table appears to be mortal, and the table which presents itself to the sense seems to enjoy some sort of immortality.

But here the objection may be raised, and with good show of reason, that in the above there is an unwarrantable transition from *sensations* to *things*. Have we not seen that, when we speak of seeing a real thing, there is usually but little in the sense, and that by far the greater portion of the elements which we conceive as constituting the thing exist, in so far as they exist in our experience at all, not in the sense but in the imagination? Why, then, speak of our sensations as connected together into a system and constituting an orderly world? Can anything be more irregular than the actual sense-experience which we have of things? I see my table to-day and I do not see it again until day after to-morrow; on some occasions I see it but do not touch it; the under side of it I happen never to have seen at all. What sort of material is this of which to make a real table holding its place in a real world?

That world appears before the windows of the senses only in fugitive glimpses, and we may piece these together as we will, but they still remain ridiculously inadequate to make such a world as we conceive the world to be. Is the life history of a table nothing more than a discontinuous series of flashes? It is clear that we cannot take quite literally the statement that our *sensations* fall into an ordered system and constitute what we mean by a world of things.

If, however, we understand the statement aright, there is no reason why we should not approve it. It is quite true that our sensations do not of themselves constitute our consciousness of a world of real things; this world does not present itself to us immediately as a complex sensational content upon which we gaze. It is rather a something built up out of the materials furnished by sense, supplemented by elements which, while not themselves sensations, are made to represent such. Sensations, memories of sensations, and imaginary experiences which are not memories, though their elements have no independent source, all enter into its composition. Our sensations, actual and remembered, are separated by gaps which must be filled before there emerges the system of experiences which we call the world of real things.

The gradual emergence of such a system in an individual consciousness is described at length by the psychologist, and is termed by him the development of a consciousness of the external world. We may take such a description, clear away all reference to the psychological assumption of the existence of an external world beyond consciousness and not composed of consciousness-elements, and, taking our stand upon ground proper to the metaphysician, see in it a description of the elements which enter into our conception of an external world when we speak of such without reference to this consciousness or that. It is merely a question of an analysis of conceptions; the psychologist asks himself just what he means when he conceives of this man or that as being conscious of the external world; the metaphysician asks himself just what is meant by the expression "the external world," and sees that he can answer this question independently. Still, he can use the analysis made by the psychologist; it may be of no small help to him, if he will avoid being misled by the assumptions included in the reasoning which he is following.

He may see clearly — a point of especial importance at this

stage of my discussion — that the psychologist lays great stress upon the sensational elements in the consciousness of an external world, makes them, in fact, the basis and the justification of the whole construction. When he reflects upon his own consciousness of the world at any moment, he realizes that this is justified. He sees that the imaginary constituents of the world of real things which he finds in his experience do not take their place in that construction *as imaginary elements*, but as representative of sensational elements. It is their content, so to speak, which belongs to the construction, not the content with the added characteristic of belonging to the class called imaginary. There is, thus, a sense in which we may say that the external world is constituted by the sensational elements in our experience. These elements appear to belong to it in a way in which other elements do not. They constitute it, and elements remembered or imagined merely represent it.

So important is the point here insisted upon that I may be permitted to delay upon it, even at the risk of a little repetition. I am sitting here in my room and I see my table before me. Everyone is willing to admit that this particular experience of color is a sensation. It appears strange to no one that I should *see* my desk under such circumstances. Beyond my room is a hall, and at the end of this a door. I say that I *think* of the door as there — that I *imagine* it, but do not see it. Both in the case of the desk and of the door I believe that I am concerned with real things in a real external world, but I unhesitatingly draw a distinction between seeing a thing and imagining it.

The door imagined is not an arbitrary product of my imagination; it is not mere fancy. It has its definite place in my conception of the external world. Hence it does not appear to be by any means so lawless a thing as a purely imaginary door, and what has been said of the distinction between sensational and imaginary elements in consciousness seems to be contradicted. Whether it appear in my consciousness as imaginary or not, I think of that door at the end of the hall as a real door, and I feel that I cannot by an act of will change its nature or annihilate it altogether. But the contradiction disappears when we bear in mind what has just been said above, namely, that the imaginary elements in our consciousness of the external world are not imaginary elements pure and simple, but are imaginary elements which are regarded

as representative of sensational. They must be what they are, for their nature is determined by the content which they represent. We have here, not sensation, but, as I have expressed it a few pages back, *a reference to sensation*, and this must be present in all our affirmations of the reality of things.

That even these imaginary elements, which help to fill out *our conception* of the external world, do not themselves fall directly into the system of real things, we recognize when we call them imaginary. As I have said, it appears strange to no one that, sitting here, I should *see* my table and only *imagine* that door. What does this mean? It means that the table as seen, this particular visual sensation, is actually in the setting in which things must be if they are to constitute elements in the external world. The door which I imagine is not in such a setting. Were I standing in the hall, *i.e.* were the setting other than it now is, I would *see* the door. Whether a given experience is or is not in the setting which guarantees it a sensation, men may know very well, as I have indicated, without knowing just how they know it, and without giving much conscious thought to the distinction between what is real and what is imaginary. We cannot, then, legitimately quarrel with the statement that sensations constitute the external world of things, and that the imaginary elements in our conception of such a world are merely representative of sensations.

Thus we see that by the expression "the external world" we mean a construct in consciousness, and a construct in consciousness of a peculiar kind. We do not mean precisely what we do when we use such a phrase as "my consciousness of the external world at this time or at that." We have seen that, when we think of certain consciousness-contents as having their place in the construct which we call the external world, we abstract from the degree of vividness with which they may happen to appear in consciousness. Sensations are not necessarily vivid, and provided that we have some sort of proof that a certain experience belongs to this class, we do not refuse to accord it a place in the system of real things merely because it does not stand out prominently in consciousness. Such differences we describe as differences in our perception of things, not as differences in the reality of things. Of course, when one has arrived at the notion of an orderly system of things, and has learned to account for this or that peculiarity in one's experience by a reference to other parts of the system, one

does not regard a difference in the vividness with which experiences present themselves as something inexplicable and independent of the system as a whole. Nevertheless, one recognizes that what we call the reality of a thing has little to do with the vividness with which it presents itself in consciousness.

We have also seen that what I call "my consciousness of an external world" is a complex of sensational and imaginary elements, and yet we do not regard real things as composed of elements of the two classes.

So little does it appear to be necessary to mark this distinction when one is discussing real things, that most persons experience an emotion of surprise when it is pointed out to them that their consciousness of things is largely made up of imaginary elements. They are interested in *things*, not in their percepts as percepts; and when we are concerned with things, the imaginary elements in our percept are representative of sensational; they are important to us primarily on account of the function which they perform, and we pay no attention to the fact that they are in themselves to be differentiated from sensations. The qualities of things, as we call such elements of our experience as are conceived to have a place in the system under discussion, are not conceived as existing now in the sense and now in the imagination; they are simply regarded as forming a constituent part of that system and as sharing its reality.

This distinction between "the external world" and "my consciousness of the external world" — a distinction drawn equally by the plain man, the man of science, and the metaphysician — becomes clearer when we see in it an instance of the very common distinction between that which is symbolized or represented and the symbol which stands for the former.

This distinction has been discussed at length in Chapter III, and what has there been said is of importance to a clear understanding of the doctrine of the external world and our consciousness of it. What we call "a thing" is a complex construction, and we all believe that things are or may be much more complex than the elements regarded as belonging to them that we actually find in our experience — more complex, in other words, than that of which we are intuitively conscious.

When, for instance, I look at my table, I realize that even when I supplement the color-sensations which I experience by other

color-sensations remembered or imagined, and by similar materials drawn from the province of the other senses, yet all the elements that are actually in my consciousness do not exhaust the sum total of the experiences which the words "my table" may be made to cover. I distinguish between all that is in my thought, and all that belongs to the thing. I regard the thing as more complex than my representation of it. And when I have to do, not with a single real thing like a table, but with the system of real things as a whole — when I talk about the external world — I am quite ready to admit, if the matter be brought to my attention, that what is in my consciousness is a very inadequate representation of the external world. The external world I conceive to be something indefinitely richer and more complex.

I have said that this distinction between our experiences and the external things for which they are conceived to stand is by no means peculiar to the metaphysician. He merely tries to make clear what the distinction is, and to avoid the inconsistency into which others seem to fall. The plain man and the psychologist regard the real things for which our experiences stand as existing wholly outside of consciousness and as separated by an impassable gulf from our experiences as a whole. At the same time they tacitly assume that we directly perceive these same real things and are not cut off from them at all. The impossibility of accepting their doctrine as final has been pointed out, and it is not necessary to repeat what has been said. The metaphysician must retain the distinction which they have recognized, but he must so define it as to avoid self-contradiction.

It is not possible at this stage in my discussion to exhibit the full significance of such expressions as "my consciousness" and "the consciousness of another man"; but it is at least possible to recognize that the distinction between a thing as it is actually found in my experience and a thing as it is conceived to be in its own nature, becomes a comprehensible and by no means an absurd distinction when it is perceived to be a distinction between symbol and that which is symbolized. In the one case we are concerned with a given content in consciousness in itself considered, and in the other with a content in consciousness regarded as representative of some other complex of consciousness-elements. It is perfectly just to draw a distinction between symbol and thing symbolized, but in drawing this distinction we must not grow incoherent or

unintelligible. We must remember what is meant by a symbol, and what is the true nature of symbolic knowledge. Within the limits of experience — within consciousness, in other words — one complex may symbolize or represent another; but it is inconceivable that any experience should symbolize a something wholly beyond experience, a something so completely cut off from experience as the external world is sometimes conceived to be.

The external world of real things is, thus, a construct in consciousness. It is a system of elements related to each other in certain fixed ways. When we speak of this or that man as being conscious of this or that aspect of it, we are distinguishing between a more or less satisfactory representative of the system, and the system itself. That we can make this distinction does not imply that we have in mind an intuitive consciousness of both the representative in question and the system represented by it, and that we place them in thought side by side. Our procedure is just what it is in other cases in which we distinguish between the symbol and that which it stands for.

We may regard one man as having a very inadequate notion of what is meant by a million units, and another as having a truer conception of that number, but we never dream of the latter as being intuitively conscious of a million as he may be of two or three individuals, nor do we arrogate to ourselves the power of thus knowing so large a number. And yet we can distinguish between the million, in itself considered, and the representative of it which is actually present in the consciousness of any individual at any moment. The latter is just this particular experience, definitely limited, and containing no overwhelming number of constituent elements; the former is to us rather a way of looking at certain things than an individual thing, rather a formula than a fact, rather a rule for dealing with experiences than a given experience. It is an ideal, a construction which obtains its significance ultimately from that intuitive consciousness which we have of small numbers, and its justification from the fact that by means of it and other similar conceptions we take our departure from and return to such intuitive experiences in an orderly way, predicting and verifying our experiences as we could not without the aid of these conceptions.

When we are concerned, not with the elements we actually have in mind when we speak of a million, but with the conception

of a million in itself considered, we abstract from the fact that the units of which it is assumed to be composed are not present in consciousness as are the units which compose the number two, and we treat our million as though it were composed of the same materials. For the purposes of an arithmetical calculation, it is of no consequence whether our consciousness of the group of units with which we are dealing be intuitive or symbolic. If we reason well, the results at which we ultimately arrive are the same. And it is not nonsense for us to say that it is conceivable that to a consciousness of a different nature from our own a million units might be intuitively present, might be recognized clearly and distinctly, as small groups of two or three units present themselves to us. We cannot *picture* such a state of affairs, but we can *think* it; that is, we can make a mental construction which will fairly represent it; we can represent it to ourselves symbolically. We *mean* something when we say it, and our conviction that we do so cannot be shaken even by the lack of clearness in the metaphysician's attempt at an exposition of what we mean.

So it is with our conception of the external world. We may admit that some frame a better notion of it than others, and that we all have something actually in mind, when we speak of it, which but very imperfectly represents its indefinite complexity. Nevertheless, even in thus speaking, we distinguish in some sort between the external world as it is and the ideas of it which this or that man may happen to cherish. We distinguish between the representatives of it in individual minds, and the ideal system of which they are supposed to be representative. As in the former instance, there is nothing to prevent us from conceiving of a consciousness in which vastly more of the real world is intuitively present than is the case with us.

It is thus quite possible for the metaphysician to hold to the common psychological distinction between the conception of an external world which is built up in this mind or in that, and the original which this conception is supposed imperfectly to represent. But it is necessary to bear in mind that it is quite impossible for the psychologist to recognize that his conception of the external world is but an indifferent representative of the external world itself, if this world be a something quite outside of consciousness. No man can compare two things, one of which in no way enters into his experience. He who is wholly shut up to his copy of

a world cannot even know that it is a copy, and of course he cannot know that it is an imperfect copy. He must, in some sense of the word be *conscious* of both, if he is to mark the distinction between copy and original. But in what sense? For it seems pertinent, if he be conscious of both, to ask, of what use is the copy? and why if it exist at all, need it be imperfect? The difficulty disappears when we realize that we are not dealing with original and copy in the sense in which the psychologist is tempted to believe that we are; but that we are dealing with the distinction between symbol and thing symbolized. Evidently there is a sense in which both must exist in consciousness, for were there not, it would be impossible for the symbol to be recognized as a symbol. It is only when we are representing the distinction to ourselves diagrammatically that we have the right to place the two side by side as though they were numerically distinct in all their elements. Original and copy are here distinguishably different; nevertheless, we find that the one experience may have its place in the copy, and at the same time may form a part of that system of things which we call the real world.

CHAPTER VII

SENSATIONS AND "THINGS"

We may sum up the conclusions so far arrived at as follows: (1) the real external world is a complex of consciousness-elements; (2) when we speak of our consciousness of it, we recognize that what we actually have in mind is a compound of sensational and of imaginary elements, the latter largely predominating; (3) but we do not think of imaginary elements, as such, as actually entering into the composition of the real world — we see that the only elements which really fit into the system are the sensational elements; (4) it seems to follow that the real world which we are discussing is a complex of sensational elements and of none other.

Here there appears to stare us in the face something very like a contradiction, an antinomy. Have we not concluded that the external world cannot be external in such a sense as to be wholly beyond consciousness, since in that case it could mean to us nothing at all? On the other hand, has it not been pointed out that the actual experiences we have of things, our sensations, are something very scrappy and chaotic until they are supplemented by imaginary elements and built, together with them, into a single system? If this system is not the real world, where is this world? It cannot be *out of* consciousness; and it does not seem to be *in* consciousness, for our consciousness of it is just this combination of sensory and imaginary elements which we have discovered that the real world cannot be. It appears, thus, that the sensational elements which are found in consciousness will not suffice to make a world, and that the only things we have at hand, with which to supplement them, are incapable of entering into its composition.

But the reader has probably seen at once that this antinomy is only an apparent one, and that what has been said, in the last chapter, of the distinction between symbol and thing symbolized, representative and that for which it stands, is sufficient to conjure it away. When we consider our consciousness of the external

world, when we confine our attention to the symbol, we perceive, of course, that the elements composing it are partly real and partly imaginary. But the symbol, in itself considered, is not the external world. It is a representative of it and no more.

By the external world we mean that for which the symbol stands, the ideal system of experiences of which the symbol is admitted to be an inadequate representative. In thinking of this we are abstracting from the inadequacy of the symbol. In saying that this is constituted of sensational elements we are simply recognizing the fact that certain elements in the symbol fall directly into place in this system and that others do not, and also the fact that every element which is conceived as entering into it must enter into it in the way in which these are perceived to. In the real world there is no distinction between sensory and imaginary. Such distinctions have to do with the symbol, not with the system of experiences for which it stands. They must be abstracted from when we decide to occupy ourselves with the latter.

If, however, we abstract from such distinctions, what right have we to go on using the word "sensation"? With what color of justice can we say that the system of real things is composed of sensational elements? Here, at least, we have a sound and solid objection. I must frankly admit that these words contain a psychological reference which should be abstracted from if we intend to turn away from the symbol and consider only that for which it stands. When we call a given experience a sensation, we do not merely think of it as having its place in the system of experiences which we call the real world. We mean something more than this. We think of it as having a certain kind of existence in a given consciousness, as being different from other elements in that consciousness. In other words, when we speak thus, we think, not merely of the real world, but of some one as perceiving that world. These two thoughts are not identical, and they should not be confounded. Why, then, use expressions which appear to be misleading?

To this question I must reply as follows: —

1. I use these expressions because I can find nothing better. Language was not framed to mark those distinctions which interest the few who devote themselves to reflective thought, and which pass unnoticed by the plain man. If, instead of using the expression "sensational elements," I used the expression "elements of

things," I should probably set my readers thinking about atoms or molecules, or something else about which I do not in the least wish them to think in this connection. Moreover, the statement that the world of real things is made up of "elements of things" appears tautological and unfruitful. It carries with it no suggestion of how one is to get at these elements and examine them one by one.

2. The expression "sensational elements," faulty as it is, is not without its advantages. For one thing, it suggests, and rightly suggests, that, when we are discussing the nature and elements of the external world, we are, in the last analysis, dealing with consciousness, with experience, and not with an incomprehensible something beyond it.

3. The expression furnishes us, furthermore, with a suggestion of the way in which experiences are to be analyzed. Both the plain man and the psychologist are familiar with a classification of the sensations, and, hence, with what has been called the "metaphysical division" of things. There is no reason why the metaphysician should not make use of the excellent work which has been done by the psychologist, and turn it to his purposes. All the elements which the latter succeeds in discovering in any experienced content are there for the former as well; and the fact that one man is studying them as partial constituents of a world of real things and another as experiences in a given consciousness, does not prevent their being just what they are — a complex of such and such elements in consciousness.

4. Finally, the expression "sensational elements" does bring in, after a fashion, the notion of the external world with which we are concerned. The psychologist refers sensations to the outer world, and he distinguishes between sensations and the copies of sensational elements which are furnished by memory and imagination. To him the external world as it is reflected in sensation is *as immediately known as the external world can be.* It is upon sensation that he bases the whole construction which he calls the idea of the external world in a given consciousness. Imaginary elements enter into it only as representative of sensations. This characteristic of sensations, namely, their capability of entering directly into this construction, the metaphysician may lay hold of, even while he abstracts from other suggestions which the word "sensation" has for the psychologist. What the latter regards as

constitutive of the *external world as known*, the former may regard as constitutive of the *external world*, abstracting from the relation of knowledge as it is presented in the psychological doctrine of representative perception, and passing from symbol to thing signified.

These considerations appear to justify the statement that the system of real things is composed of sensational elements. It is to be regretted that there seems to be no better form of expression for the truth here indicated, and the reader is expressly warned against the psychological associations which cling to the words. The sense in which they are meant to be used is explained in the preceding pages, and I hope that no other sense will be read into them.

There was a time when the philosopher spoke of *reality* as though it were a measurable something in things, and as though it could be present in this or that thing in varying quantities. God was the "*ens realissimum*," and finite things possessed reality in a minor degree. The search for the causes of given effects was guided by such maxims as that a cause must contain at least as much reality as is to be found in the effect which is referred to it.

For example, Descartes argues that, since he found in his mind the idea of God, God must exist as the cause of that idea, for the idea in question contained too great a quantity of reality to be referred to any lesser cause, and it seemed self-evident that the greater could not come from the less nor the more perfect from the less perfect. The same error lies at the root of the quibble that finds God's "existence" (which here means real existence) to be contained in His "essence." The existence is here treated as part of the total content — a something which may in general be added to or taken away from the other determinations of a thing, but which is in this case discovered to be so bound up with the other determinations that it cannot be so taken away.

We rarely meet, at the present day, with arguments exactly like this, yet we often meet with arguments in which a misconception of the same general nature is present. We are exhorted to avoid "phenomenalism," to hold on to "reality"; and we are conjured not to forget that this thing or that — usually the *ego* — is not a mere bundle of states or activities, but is a "real thing." But what is a "real thing"?

The expression as we find it used usually suggests that the

writer admits to be real only the substance or substratum, itself unperceived, which was once universally, and is still very commonly, supposed to underlie the qualities of things. But even those writers who expressly repudiate this hypothetical entity may go on using the phrase very much as do those who still cling to it. It is plain that, whatever else they may have in mind when they employ it, they at least have in mind the notion that a "real thing" somehow differs in content from other things in our experience. They believe that, *in itself considered*, it means more. It is sometimes extremely difficult to gather from their pages just what they do mean by a real thing and its reality; but they evidently regard reality as a something of the highest importance, and exhibit no little nervousness lest it should for some reason be allowed to slip away.

I hope it has been made clear in the preceding chapter that reality or real existence is not a something added to the content of things. I hope, furthermore, that it has been made plain that it is not a something of such a nature that it must forever lurk in obscurity — a something to be named from time to time with respect, and yet never to be described. The reader has probably already remarked the fact that the word "existence" is ambiguous. It may be used (1) to cover any content of consciousness intuitively present, imaginary as well as real; and (2) it may alone, or modified by the adjective "real," be used to discriminate between consciousness-contents. Thus, we often say that this thing or that does not exist, but it is a mere creature of the imagination.

It is with the second sense of the word "existence" that we are concerned when we speak of the existence of external things. When we call a thing real, or say that it really exists, we mean that it takes its place in the system of experiences which has been discussed at such length in the preceding chapter. This is the sole ultimate criterion of its reality; indeed, this *is* its reality. The reality is not in any sense a part of its content; it is its relation to other experiences. This should be sufficiently clear to any one who will reflect upon our invariable method of *proving* the reality of anything. As we have seen, we try to discover how the thing behaves, where it belongs. We never dream of investigating whether it has a "substratum" underlying it, or of looking for the "reality" as a constituent in it. When we have discovered that this thing, this experience or complex of experiences,

takes its place in the orderly and coherent system of experiences which we contrast with mere imaginings, we call it a real thing. Its reality means to us this, and nothing more.

But here it is very necessary to bear in mind the warning against misunderstanding the statement that the external world is composed of sensational elements. It may be argued that, if the real world is composed of sensational elements, it can only have an actual existence in so far as it is realized in some particular consciousness. In other words, what we have called the symbol, the individual mind's representative of the external world, is all that can actually exist. That for which the symbol stands, the external world in itself considered, can only be regarded as existing "potentially"; that is, it can only be regarded as capable of being realized to a greater or less extent in this consciousness or in that. It is a possibility, not an actuality. Can there be sensations at large? Sensations which do not form part of some particular consciousness? The world, then, in so far as it actually exists, must, if it be composed of sensational elements, exist in some individual consciousness or consciousnesses. And in so far as the world exists "potentially" it cannot really be said to exist at all. To say that it exists "potentially" is equivalent to saying that it will exist or may exist, not to saying that it exists. Does it not seem to follow that the doctrine that the real world is composed of sensational elements necessitates the inference that this world has no real existence except in so far as it happens to be perceived by some one? in other words, in so far as it exists intuitively in some consciousness?

In all this there is evident the influence of the misapprehension against which the above warning was directed. It is a misapprehension which makes very easy the confusion of the two senses of the word "existence," and the consequent denial of existence to the external world. If there is one source of error in philosophical reasonings more constant and insistent than any other, it is the fatal tendency to abstract from this or that and then go on thinking and speaking as though one had not thus abstracted. In the present instance we pass from symbol to thing symbolized, from the individual's consciousness of the world to the world itself. We abstract from the limitations of the symbol. We discover that the word "existence" is ambiguous, and that it has a special meaning when we apply it to things in the real world. Then we

straightway forget what that meaning is, and insist that things in the real world must have existence, not in the second sense, but in the first, if they are to have any existence at all. Perhaps, in a fit of generosity, we allow them that dubious sort of existence we call potential, which is not existence, but a prophecy of such. No wonder the real world comes to seem unreal to those who treat it in this fashion. We have returned from the thing symbolized to the symbol, and reassumed the limitations we had transcended by abstraction. The real world is then regarded, either as having no existence save as it breaks out sporadically in this or that consciousness, like a passing cutaneous eruption, or as having an existence that only a philosopher can distinguish from actual non-existence, the existence called potential.

In any case the real world loses. It must lose, because when we fall into this confusion, we deny distinctions which exist and have importance both in common thought and in science. We all recognize that it is one thing to think of this man or that as perceiving the real world, and another thing to think of the real world itself. It is quite true that the man who remains upon the plane of the common understanding misconceives this distinction, when he undertakes to make it clear to himself. He regards the real world as a something quite outside of consciousness, not composed of consciousness-elements, and cut off completely from direct inspection. But although he misconceives the distinction, he is quite right in drawing it, and insisting upon its importance. It is one of no little moment both to common thought and to science.

Moreover, we not only distinguish between the real world and this or that perception of it, but we all believe that the real world exists actually even when we do not happen to perceive it, and that it stretches beyond the limits of our perception. We believe that the table in the next room really exists. We do not think of it as existing potentially, as a mere prophecy or promise of existence. We believe that it exists *now*. And in this we are right. It exists now in the only sense of the word "exist" applicable to real things *as real*. It has its place in the system of experiences which make up the real world.

But how can anything have its place in a system of experiences, when it is not actually experienced? How can it exist actually when it is not intuitively present in any consciousness?

The objection seems plausible, but it is the identical objection that I have been combating all along. The objection assumes that the word "existence" has but one meaning, and that if things do not exist in the first sense of the word they do not exist at all. And yet it is quite clear, to one who will examine the actual uses of the word, that it is constantly used in a double sense. The distinction recognized by the metaphysician is not his own creation. He merely makes explicit what is implicit in the thought of others. He endeavors to point out what "real existence" must mean, dimly and vaguely, even to the man who, unaccustomed to reflective analysis, is at first inclined to repudiate with energy his explanation of its meaning. A thing can have its place in a system of experiences without on that account existing intuitively in consciousness. One who denies this wipes out the distinction between symbol and that which is symbolized; he denies the possibility of symbolic knowledge *in toto*. Surely it is a rash man who will undertake to do this.

It is worth while to delay for a moment over the distinction between actual existence and potential. It has been stated that it is not identical with the distinction between the intuitive existence in consciousness of the percept and the real existence of those experiences which we conceive as constituting the world of things. This becomes clear when we realize that we may distinguish between actual and potential existence within either of these classes. We may call experiences now intuitively present in consciousness actual; and we may call those which we expect to be thus conscious of, or may be thus conscious of, potential. Similarly, we may call an unperceived oak tree actually existent, and may call the oak tree which will spring from an actual acorn, potentially existent. In both instances, potential existence is a prophecy or promise of actuality. It is in each case, be it remarked, a prophecy of actuality of the appropriate kind: here, a promise of a perception; there, a promise of the real existence appropriate to those things that belong to the real world. It is a manifest injustice to real things as a whole to ascribe to them only a potential existence, when in fact some of them exist actually, and those of them which exist potentially are not regarded as existing *now* at all. Such a use of language gratuitously discredits real things and makes them seem unreal.

It should be remarked, furthermore — and this consideration

should make, if possible, still clearer the justice of the position taken just above — it should be remarked, that there is nothing to prevent the same experience from having existence in both the first and the second senses of the word at the same time. Certain of the elements of the table now before me exist in the first sense of the word. That is to say, I am now intuitively conscious of them. But I recognize this experience as a percept, and I see that the sensational elements which it contains belong to the real world. In other words, the table exists in sense second, as well as in sense first. It has both kinds of actuality at once, and is in no sense potential. But an experience need not have both kinds of actuality to be really existent. The table in the other room, the one which I do not perceive, exists at this moment just as really as the one before me. The difference between that table and this is a significant difference when we are dealing with perceptions; it is, however, a difference abstracted from when we are concerned with real things. It as little enters into the question of their reality as does the size of a triangle into the question of the relations between the angles and its sides.

It will have been observed that the doctrine of the nature of the external world set forth in the last chapter and in this one suggests the doctrine which has been held with various modifications by three philosophers very familiar to English readers, the philosophers Berkeley, Hume, and Stuart Mill. At the same time it will have been recognized by those who read with discrimination the writings of these men, that all three of them fall into what has been above treated as an error.

They all hold more or less to the traditional psychological standpoint even while they criticise it; and, hence, the real world, when it has passed through their hands, does not seem to be such a very real world after all. The psychologist distinguishes between his consciousness of the real world and a real world which he assumes to lie beyond it. The representative of such a world in his consciousness he regards as a limited thing, which very imperfectly mirrors the world as it really is. Now, the philosopher who sees the inconsistency of the psychologist's position, the assumption of a world beyond our experience and quite cut off from it, and who is moved by this insight to reject such a world, seems to be robbed of his real world altogether unless he can find somewhere and somehow in experience a real world which may take the place of the one

which has been lost. If he simply throws the external world away as a gratuitous fiction, and draws no distinction between his ideas of things and the things themselves, he appears to be walking in a vain show, to be fed by mere appearances, to be unable to reach reality at all.

No wonder that his words excite opposition and sometimes even irritation. When he attempts to persuade us of the truth of his doctrine, we feel that he is a would-be robber. We are accustomed to recognizing a distinction between ideas and things, and even when we cannot follow with complete comprehension the turns of a writer's thought, we refuse to have him palm off upon us as a satisfactory conclusion to his reflections upon the world, the statement that matter does not exist, or that the whole system of things is nothing but a concatenation of ideas. Of course, the popular objection to a philosopher's positions may, in some cases, be due to a mere misunderstanding of his words, or to a start of surprise at the novelty of his statements. But in other cases it may be justified. It may be that, in his endeavor to arrive at a clearer comprehension of things, the philosopher has been misled into denying distinctions which really obtain and are of significance in common thought and in science.

This charge may not unjustly be brought against the three philosophers above mentioned. That the real world does not seem very real to one who reads them is not entirely due to misconception on the part of the reader. They do overlook distinctions which are of no slight importance, and the world they offer us is not the real world to which we are accustomed, merely set in a clear light. It is something else, which we feel cannot properly be made to take its place.

Those who are familiar with the "Principles of Human Knowledge" cannot fall into the vulgar error of believing that the Berkeleyan Idealism wholly obliterates the distinction between real things and imaginary. It is true that Berkeley calls all alike "ideas," and the use of this word is in itself enough to inspire distrust in a majority of those who follow his discussions; but he states explicitly that, by what he calls "ideas of sense," he means nothing more nor less than things — things as they enter into our experience, things perceived. He is careful to point out that his polemic against a material world is a polemic against something which never has been perceived by any one, and which cannot be

proved to exist by any legitimate inference from what is experienced. It is, in substance, a polemic against the inconsistent real world of the psychologist who remains upon the psychological standpoint, and accepts it as final — an argument to show that the man in the cell [1] must really have some ground for asserting that things exist, and must mean something when he speaks of the manner of their existence, or his assertions will become mere gibberish.

Thus the world which Berkeley means to reject is a hypothetical world, beyond consciousness in the broad sense of that word. He has no intention of denying the existence of real things as they are revealed in our experience; indeed, he points out with admirable clearness the criterion by which real things are to be recognized as such. He emphasizes, as he should, the truth that the orderly character of certain of our experiences puts them into a class by themselves, and he calls the regular ways in which they are connected together and precede and follow one another "laws of nature." Moreover, notwithstanding his repeated denials that it is possible for things to exist unperceived, he recognizes with some clearness the fact that the word "exist" is used in two senses, and remarks the fact that, in one of these senses, it is applicable to things unperceived: "The table I write on I say exists; that is, I see and feel it; and if I were out of my study I should say it existed — meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it." [2]

Here we have the materials for a satisfactory correction, through reflective analysis, of the inconsistency which attaches to the psychological doctrine of ideas and things — we have a recognition of the fact that the attempt to transcend consciousness, in the broad sense of that word, is futile, and results in meaningless statements; of the fact that, within consciousness, we can find a world of things; and of the fact that we can distinguish between the presence in consciousness of a perception and the existence of a thing. We have here, I say, the materials for a satisfactory restatement, from the point of view of metaphysics, of the psychological position. It is, however, manifest that Berkeley was not himself able to use these materials as he might have done. The distinctions he draws are not always clear to him, and he is consequently more or less inconsistent. He could not get far enough

[1] See Chapter II.

[2] "A Treatise concerning the Principles of Human Knowledge," § 3.

away from the psychological standpoint to criticise it in a thoroughgoing way. That he never completely left it is evident from the following: —

Although he explains that by ideas of sense he means *things*, he is unable wholly to free himself from the usual psychological suggestions of the word "idea." Men commonly think of their ideas as in, or in some obscure way connected with, their heads; as being without extension; as forming no part of the system of material things; and as influencing external things, if at all, only indirectly, and through motions that they may set up in the human body. They are felt to be made of more unsubstantial stuff than enters into the composition of material objects. Now Berkeley treats external things, after calling them ideas of sense, somewhat as other persons treat ideas in general. That relation between occurrences in the external world which we are accustomed to recognize as that of cause and effect, he regards as that of sign and thing signified. The autumn wind blows, and the dry leaf trembles and falls. To Berkeley the passing of the wind is not the cause of the fall of the leaf. It is but a sign of that occurrence, an indication that it is about to take place. The wind *does* nothing at all. "All our ideas, sensations, notions, or the things which we perceive, by whatsoever names they may be distinguished, are," he writes, "visibly inactive — there is nothing of power or agency included in them. So that one idea or object of thought cannot produce or make any alteration in another."[1] Where did our philosopher get such a notion of the passivity of ideas? Evidently from the common meaning of the word, the meaning which sharply distinguishes between things and the ideas of things, relegating them to two distinct classes, in only one of which there obtain relations of physical causation. Do we not all know very well that the idea of a hammer cannot really drive the idea of a nail into the idea of a wall? As well expect the shadow of a dog to rend with shadowy fangs the shadow of a hare.

Various passages might be cited to show that when Berkeley discusses real things, he is unable to strip off the usual associations which cluster around the word "idea." It will be enough to refer to one more, — the one which contains the amusing suggestion, brought forward in all seriousness by this earnest soul, that the heathen world might be converted from idolatry by the appli-

[1] "A Treatise concerning the Principles of Human Knowledge," § 25.

cation of the drastic remedy of universal immaterialism. It reads thus: "Did men but consider that the sun, moon, and stars, and every other object of the senses are only so many sensations in their minds, which have no other existence but barely being perceived, doubtless they would never fall down and worship their own *ideas*, but rather address their homage to that Eternal, Invisible Mind which produces and sustains all things."[1] But why should a pagan have a lower opinion of the sun and the moon when he discovers them to be ideas? Is it not admitted that they are ideas of sense? Are not ideas of sense *things* for the Berkeleyan? To this, one has to answer that they are and they are not. They are things in bad company, birds of a feather with ordinary "ideas," tarred with the same stick and partaking of the same reproach.

Again, although it is plain from his attempt to make clear what is meant by the existence of his table, and from other passages,[2] that Berkeley recognized the double sense of the word "exist"; yet it is equally plain that he had no very distinct conception of the difference between the two senses in which the word is used. His phraseology, even when he recognizes the distinction, shows that he does real existence the injustice of confounding it with a possibility of perception: "The table I write on I say exists, — that is, I see and feel it; and if I were out of my study, I should say it existed — meaning thereby that if I was in my study, I might perceive it, or that some other spirit actually does perceive it." But existence as a possible perception, potential existence, seems to be such a mere shadow or semblance of existence, that Berkeley finds it impossible to rest in it, and is forced to conclude that, in the last analysis, there can be but one kind of existence after all.

This comes out clearly in his attempt to answer the objection that, according to his principles, the objects we perceive by the senses must be annihilated and re-created at every moment, since these objects are our perceptions, and our perceptions are not continuous but are intermittent. He denies that the doctrine of a continual annihilation and re-creation of things can be attributed to him. He has not maintained that things, to have existence, must be perceived by a particular mind. Things may be said to exist so long as they exist in any mind whatever. Our ideas of

[1] "A Treatise concerning the Principles of Human Knowledge," § 94.

[2] See the "Third Dialogue between Hylas and Philonous."

sense, *i.e.* real things, must have a continuous existence somewhere. When not present to my mind, I may infer that they have existence in a Divine Mind, in which, as in a cupboard, ideas are preserved during the intervals of their existence in finite minds: "To me it is evident, for the reasons you allow of, that sensible things cannot exist otherwise than in a mind or spirit. Whence I conclude, not that they have no real existence, but that, seeing they depend not on my thought, and have an existence distinct from being perceived by me, *there must be some other Mind wherein they exist.* As sure, therefore, as the sensible world really exists, so sure is there an infinite omnipresent Spirit who contains and supports it."[1]

This theistic argument has never, so far as I know, carried conviction to the mind of any one. It is felt to be fantastic. The error upon which it rests is manifest. In it Berkeley loses again the distinction which he has somewhat vaguely recognized between the two senses of the word "exist," and feels impelled to maintain that whatever exists must have an intuitive existence in consciousness. At the same time, he assumes it to be self-evident that real things have a continuous existence — an existence not to be summed up in the sporadic glimpses of things given in our perceptions. In this he is falling back, it is interesting to note, upon the distinction, recognized implicitly or explicitly by us all, between real things and our perceptions of them. But he is trying to turn a real thing into a permanent perception, and he sees no better way of doing this than by piecing out the deficiencies of one consciousness with patches taken from another. Real things made up in this extraordinary fashion are not worthy to be called real things, and they cannot get themselves recognized as such.

From the foregoing it is clear that Berkeley has said quite enough to justify the suspicion with which his doctrine has been regarded. He has taken away one real world, and he has not given us another in its place. He has substituted a misunderstanding for a misunderstanding, and many feel that the last state of the man whom he has undertaken to reform is worse than the first. Yet he comes, as we have seen, near to the truth. He furnishes the materials for a critical restatement of the psychological doctrine of knowledge and the real world. He does not succeed in making the restatement.

[1] "Second Dialogue between Hylas and Philonous"; see also "Principles," § 48.

We may criticise Berkeley's acute successor Hume somewhat as we have criticised Berkeley. Hume, too, fails to distinguish as he should between the two senses of the word "exist," and it is, hence, impossible for him to do justice to the real world. He occupies the psychological standpoint even while he finds fault with it.

But the error of the two men is the same with a difference, and the difference is a characteristic one. Berkeley dimly recognizes that there are two ways in which things can exist; he does not fully comprehend the distinction he has drawn, and, after making it, he obliterates it by trying to turn the continuous existence of real things into an uninterrupted perception. But it should be remarked that he never doubts the continuous existence of real things, however oddly he explains it, and in this he is at one with common sense and with science. Hume follows the lead of his own reasonings gayly; he is not easily shocked himself, and he appears to enjoy startling his reader. Instead of going with Berkeley to the end of the road, he makes a sharp turn and concludes that, although Nature compels us to believe in the continued existence of real things in the intervals of our perception of them, yet this belief can be in no way justified before the bar of the reason. He has no difficulty in showing that our perceptions themselves are intermittent, and that it is only through a misconception that we can attribute to them a continued existence. And he thinks he finds it possible to prove that real things cannot for any good reason be assumed to have an existence distinct from our perceptions. It seems to follow that real things can have no existence other than the interrupted existence which manifestly belongs to our perceptions.[1]

In his attempt to prove that real things have no existence distinct from perception Hume is the pupil of Berkeley, and he vigorously attacks the psychological doctrine of representative perception. But it should not be overlooked that the statement that the objects of our perceptions are not distinct from our perceptions themselves is an ambiguous one. It may be true or false, according to the sense in which it is understood. It is quite possible to deny, as we have seen, that my perception of the table and the real table stand over against one another as the psychological doctrine would have us believe, and yet to make a distinction

[1] "Treatise of Human Nature," Part IV, § 2.

between them. Hume does not recognize the fact that an experience looked at in two different ways, an experience regarded as standing now in this connection and now in that, may acquire a right to two names, and may justly be made the subject of widely diverse judgments. The reader who has followed the analyses of the preceding chapters has seen, I hope, in what sense perceptions are identical with real things and in what sense they are not. If no distinction whatever could be made between the two, then, of course, nothing whatever could be predicated of real things that could not be predicated of perceptions, and Hume would be quite right in denying to the former any sort of existence not attributable to the latter. This is what he actually does. Since he cannot see that the same experience may be looked at in two ways, he cannot recognize the double sense of the word "exist."

Hume cannot be accused of obliterating the distinction between sense-experiences and the copies of these in memory and imagination. It is interesting to note, however, that when he is explicitly discussing the distinction between "impressions" and "ideas," he overlooks Berkeley's most important criterion for singling out real things from the other elements in our experience. "Impressions" are made to differ from "ideas" only in that they are more lively and forceful.[1] And since, as we have seen, the reality of real things, their real existence, is but the fact of their having a place in the orderly system of our experiences, it is to be expected that Hume, more or less slighting this fact, should sin more deeply than Berkeley in what he says of the external world. Berkeley confuses perceptions and real things, but he nevertheless holds on to real things with a good deal of energy. His sense-ideas usually remain to him *things;* and he insists that his doctrine does not lead him far away from the common opinion of mankind. But the real world of things which Berkeley finds in consciousness shrivels in the hands of Hume into a world of *mere* perceptions. He impresses his reader as assuming throughout, as does the man who remains upon the psychological standpoint, that a real world, if it is to be found at all, must be found beyond consciousness; that the stuff of which "impressions" are made cannot possibly enter into its composition. He remains, in fact, a psychologist, and yet he sees clearly that the external world of the psychologist will not do

[1] "Treatise of Human Nature," Book I, Part I, § 1; and "An Enquiry concerning the Human Understanding," § 2.

at all for the philosopher. Hence he throws it away, and becomes a psychologist bereft. He is able to bear his bereavement philosophically, but it has caused much annoyance to those to whom his reasonings have seemed unanswerable.

Mill goes back to Berkeley, and takes up again his distinction between the two senses of the word "exist." But, instead of correcting the error into which Berkeley falls, he, too, concludes that the existence of things unperceived must be a merely potential one. Real things are to him no more than "permanent possibilities of sensation." We have seen that it is doing real things an injustice to confound them with possibilities of any sort, and also that this reference to sensation indicates an incomplete abstraction. The admirable clearness with which he develops his doctrine makes it unmistakably plain that Mill cannot get away from the *perception* of real things, and consider merely the *real things themselves*.[1]

[1] See his chapter entitled, "The Psychological Theory of the Belief in an External World," "Examination of Sir William Hamilton's Philosophy."

CHAPTER VIII

THE DISTINCTION BETWEEN APPEARANCE AND REALITY

From what has been said in the preceding chapters, does it not seem to follow that we must regard all sensations, of whatever description, as having a place in the real world of things? What criterion of sensation is there save that which has been pointed out — a criterion which makes the very being of a sensation, as a sensation, to consist in the fact that it has a place in that fixed order of experiences that we call the real world?

The general reference of all sensations to a place in nature appears to be, moreover, not merely in harmony with the criterion of sensation which has been insisted upon, but also in harmony with the natural impulse of the plain man, who does not, unless forced to do so, discriminate between sensations of various classes, allowing to some a reality denied to others. It is safe to say that it is no less in harmony with the impulse of the man of science, when he is not specifically occupied with scientific theory, but is living the life common to us all in familiar intercourse with the real things that are perceived to surround him in his workaday world.

He perceives the table before him to be extended, resisting, colored; the lamp which he pushes away from him emits a sound; the rose in the glass of water at his elbow smells sweet; the swollen finger which he presses against his pen has a pain in it. The real world of things which he perceives about him is not made up of sensational elements of one or two classes exclusively. It contains things extended and resisting; but these things are also colored and sonorous, and some of them may tingle with pain. What considerations can induce a man to conceive that real things, as they are, lack some of the properties which they seem to reveal themselves as possessing? Why should a man give to certain sensations a preference over others, and, constructing for himself a paler copy of the rich and varied world of his actual experiences,

declare this to be the *real* world from which the veil of appearance has been torn away?

There is here, it should be observed, no question of a distinction between sensations and experiences of the class called imaginary. The color seen, the sound heard, the pain felt, are really seen, heard, and felt. They are not merely imagined. They are sensations, and in so far they belong to the same order as sensations of touch and movement, the ones commonly left to the real world when it has been robbed of all others. On what pretence shall they be excluded from the real world to which they certainly seem to belong? That men do come to discriminate between different classes of sensational experiences, allowing to some a place in the world of real things and denying such a place to others, is a fact with which the reader is, of course, familiar. In this chapter I shall try to show what has led to the emergence of this distinction, and shall exhibit the form that it has taken in the hands of the common-sense philosopher and of the man of science.

The question of the reality of what is given in perception was recognized to be a problem calling for solution very early in the history of reflective thought. It was discovered that there must be a distinction between things as they appear and things as they really are. Such men as Anaxagoras and Democritus came to the conclusion that the senses are imperfect instruments, and are by themselves unable to discern the true nature of the elements that enter into the structure of the real world of things. This function, they thought, can be performed only by the reason, which has the power of passing beyond the data furnished by sense, and of grasping the reality that lies behind the veil.

It seems scarcely too much to say that, just as soon as philosophy grew to be something more than a crude attempt at laying the foundations of physical science, its great problem was felt to be the nearer definition of the reality which underlies the play of appearances and which is not distinguished from appearances by the unreflective. And as reflection upon this problem made it evident that it is by no means easy of solution, there were, as we might expect, those who stood ready to deny either that there was such a problem, or that it was one for which any conceivable solution could be found. Thus Protagoras and Pyrrho, finding it impossible to retain the naïve confidence in the power of the reason to transcend the mere appearance, and to rest in a reality

more satisfying, concluded that no truth — no such truth, at least, as has been the goal of the endeavors of earnest men from the dawn of reflective thought to the present day — is attainable by man. Of these worthies, the one seems to have maintained that every appearance is as real as every other; while the other held that, although reality and appearance may theoretically be distinguished, yet the mind is incapable of deciding between true and false appearances, and will, hence, do well to empty itself of all opinions whatever, to draw from appearances no conclusions of any sort, and to cultivate a vacuity in comparison with which the agnosticism of our day is dogmatism itself.

Such a scepticism as this, it is, of course, impossible for a sane man to embrace, except in a professional capacity and for purposes of discussion. It is not difficult for us to see that Protagoras and Pyrrho, neither of whom was a madman, did really draw between appearance and reality the distinction of which their doctrine would rob them. Protagoras certainly recognized, in spite of himself, the distinction between real and apparent truth, for he conducted himself with propriety in the practical affairs in which he was involved, and he assumed in his discussions that he had truth to communicate, a truth in some sense common to himself and to his listener. As for Pyrrho, that ancient humbug is plainly betrayed by his gossiping biographer, Diogenes Laertius, who, after stating that Pyrrho's life corresponded to his principles and that he put no credence in the reports of his senses, goes on to tell us that he lived to a very advanced age, and that he never acted imprudently or did anything without due consideration!

The sweeping denials of Protagoras and Pyrrho do not have their source in a clear perception of the fact that there is no difference between appearance and reality, but may be taken as an expression of despair at the difficulty of knowing where to draw the line of demarcation. The helpless philosopher throws the handle after the hatchet, and denies what he is powerless to explain. He asks what is the real color of the neck of a dove, and the real weight of a stone. Shall he assume that these are just what they at a given moment seem to be? Alas! the color changes at every instant as the bird turns its head; and the stone is found to have one weight in air and another in water. Which of the series of colors shall be regarded as the real one? Is the stone really heavy and made light by water, or is it really light and

made heavy by air? These ancient sceptics had stumbled upon the principle of relativity, and were routed by it as many have been routed since.

I have said that the plain man does not, unless something forces him to do so, feel impelled to distinguish between the appearance of things and the things themselves; and I have also said that even the man of science, when he is dealing with the familiar things just about him, is not conscious of such a distinction. Appearance and reality seem to be so nicely adjusted to each other that the distinction between them altogether slips out of mind. This particular appearance — the color of the desk at which I am writing — seems to belong to the reality if anything does, to be an element in or an aspect of the reality itself, not a mere appearance through which something else is known really to exist. As long as I confine my attention to appearances of this sort, I feel little inclination to think of them as appearances at all. To me my desk *is* colored, my clock *does* tick, the smoke from my cigar *is* fragrant. This that I see *is* my desk, and this that I hear *is* my clock. *In* such appearances, not *through* them, I seem to grasp my reality, and to grasp it just as it is. But it is not in such appearances alone that I live, and a reflection stung into activity by appearances more or less similar to these, but apparently less trustworthy, awakens a doubt touching these also.

When I turn and look out of my window, I see as a faint bluish patch upon the horizon the tree that I passed yesterday and saw as a large expanse of vivid green. I recall my past experience of the fact that the colors of things vary with the distance from which the things are seen; that they do not look the same in the morning and at high noon; that the passing of a cloud, the rising of a mist, may produce a change sufficiently marked even while I am gazing upon the landscape.

It is impossible for me not to ask myself whether any one of these objects seen under varying aspects has a real color of its own, a something which belongs to it as its private property, a something independent of the change of circumstance which causes such a series of changes in my perception. And when I recall also the fact that objects which seem to me to present startling contrasts of color may not appear to my neighbor to differ in color at all, I am impelled to raise the question whether my own eyes may not be as important a circumstance as any in determining

whether the objects about me shall be seen as of this color or that.

When, with all these considerations before me, I look again at my desk, I am forced to acknowledge that the reality which I seem to see before me has taken on a somewhat novel aspect. I catch myself wondering whether I can produce evidence that the desk really is more like the thing it seems, when seen at close quarters, than like that which it seems under other circumstances. The particular experience which appeared to be so indubitable and so satisfactory is seen to be one of a series which fade into each other by imperceptible degrees. It obeys all the laws of the series to which it belongs, it is in no sense a thing apart and independent. If I regard — as I undoubtedly do — certain of the members of the series as mere appearances, giving, it is true, some indication of the reality which they represent, but in no sense a constituent part of it, by what right shall I single out this particular member of the series and insist that in it I grasp the reality at first hand? How shall I justify the assumption that, although a tree at a distance *looks* blue, the tree really *is* green, and that this desk at which I write really *is* the color that it seems to be? Must I not in consistency admit that this visual experience, so vivid, so insistent, so seemingly real, is nevertheless no true part of the real thing I call my desk, but is a mere appearance, nay, a delusive appearance, since, in spite of all my reflections, I find it hard to realize, while I look at it, that this particular expanse of color is not actually before me, as independent and as much outside of my body as anything belonging to the desk can be? Perish the thought that I should be deceived in what seems so clearly and so immediately known as this! — and yet, how shall I answer the reflections that impel me along the steep descent which Pyrrho travelled before me?

It is plain that if it is possible by reflection to rob external objects of their color, it can be no difficult task to relieve them of some of the other properties above mentioned.

I perceive that the sounds emanating from my clock are loud or low as I approach the clock or recede from it. If I stop my ears with my fingers, they disappear altogether. I notice that as a series of sounds rises in pitch, there comes a point at which, to me, sound gives place to silence, while by my neighbor it is still heard as sound. Can I, in the face of such facts as these, continue to

believe that the sound I now hear so distinctly coming from the clock close in front of me is really the external and real thing it seems to be? It is certainly my first impulse to think so; but must I not correct this impulse and regard the sound heard as merely an effect of some sort upon my ears, an indication of something itself not heard at all?

And the same conclusions force themselves upon me when I reflect upon my experiences of odors and of tastes. The odor of the rose, the taste of the apple, occasion all sorts of perplexities if I insist upon regarding them as really in the things in which they appear to be. Does the rose still smell sweet when I am suffering from a cold in the head? And is a sweet apple still in itself sweet, when the bodily change effected by an indigestion makes it to me bitter and offensive? As to that wretched pain which throbs in every part of a swollen finger, that pain which seems so unmistakably just where it is and nowhere else — this, too, it appears, must range itself among the things that are not what they seem, for the psychologist tells me that the seat of the pain is not the finger, but the brain, and he offers something like proof for this assertion. He points out that the swollen finger is not felt as painful if the nerve that serves as medium of communication with the brain be severed; and then he relates various puzzling instances of pains that have been clearly felt as in a finger or in a toe, when the previous amputation of the member has put it beyond all doubt that the pain in question was a lying appearance, and was palming itself off for what it could not possibly be.

When one ruminates upon all these things, it is impossible not to feel a certain sympathy with the Pyrrhonist. The most familiar objects take on an unfamiliar aspect. The plain man to whom such difficulties have been suggested, is no longer in the enjoyment of his primitive simplicity. He has begun to recast his world, to discriminate between appearances, and to reject some, which he never thought of doubting before, from the realm of reality. Whatever may be the result of his reflections, he is not likely to assert that there is no such thing as reality. That is not done in our day. But he may very well feel a good deal of perplexity in the endeavor to decide what he shall consider reality, and what he shall refuse to regard as such. It is well to remark the fact that even after the trail of the serpent of doubt has laid its blight upon every corner of his unreflective paradise, there are times when he has revulsions

of feeling, and forgets that he has eaten of the fruit of the tree of knowledge. When he gazes at the pen which he holds in his hand or scrutinizes the desk before him, he still feels that these particular appearances are real and belong to his real world. To him these things again *are* what they appear, and his previous reflections are forgotten. To bring these experiences once more in doubt, he must recall what has temporarily passed from his mind, and fall back upon a wider experience, the elements of which do not seem to be so completely in harmony.

Perhaps no one has drawn the line between appearance and reality in a way more satisfactory to the plain man who has entered upon the path of reflection, but has not taken leave of common sense and plunged headlong into the shadowy realm of the metaphysician, than has John Locke in his immortal "Essay." We have seen that even the plain man distinguishes between his ideas and the things they are supposed to represent. Upon this distinction Locke takes his stand, and by its aid he smoothes away the difficulties presented in the preceding paragraphs. Real things exist outside of us, and they cause ideas in our minds.

"The notice we have by our senses of the existing of things without us, though it be not altogether so certain as our intuitive knowledge, or the deductions of our reason, employed about the clear abstract ideas of our own minds; yet it is an assurance that deserves the name of knowledge. If we persuade ourselves that our faculties act and inform us right, concerning the existence of those objects that affect them, it cannot pass for an ill-grounded confidence: for I think nobody can, in earnest, be so sceptical as to be uncertain of the existence of those things which he sees and feels. At least, he that can doubt so far (whatever he may have with his own thoughts) will never have any controversy with me; since he can never be sure that I say anything contrary to his own opinion. As to myself, I think God has given me assurance enough of the existence of things without me, since by their different application I can produce in myself both pleasure and pain, which is one great concernment of my present state. This is certain, the confidence that our faculties do not herein deceive us is the greatest assurance we are capable of, concerning the existence of material things. For we cannot act anything but by our faculties; nor talk of knowledge itself, but by the helps of those faculties which are fitted to apprehend even what knowledge is.

But besides the assurance we have from our senses themselves, that they do not err in the information they give us, of the existence of things without us, when they are affected by them, we are farther confirmed in this assurance by other concurrent reasons."[1]

These concurrent reasons are as follows: Perceptions must be produced in us by exterior causes affecting our senses, for those who lack the organs of a sense lack the appropriate sensations. The organs themselves do not produce them, for then the eyes of a man in the dark would produce colors, and his nose would smell roses in the winter. Again, I can recall and banish what memories I will, but when I look with open eyes at the sun, it is not in my power to reject the ideas the sun causes in me. Between ideas in the memory and genuine sensations there is no little difference, and the latter must be referred to the "brisk acting" of objects without me, and to nothing else. In the third place, the sensation of pain is one thing and imaginary pain another. It is absurd to put them upon the same level. Real pains are caused by real external things disturbing our bodies, and that is why they disturb us. Finally, our senses support one another's testimony. He that sees a fire may put his hand into it. Can he longer doubt?

All this is the very quintessence of the philosophy of common sense. There are external things and there are minds; and the external things affect the minds, thus producing sensations which give knowledge of the things. And how neatly this explains how it is that things make themselves known through such a perplexing and apparently inconsistent variety of appearances. Our ideas, *i.e.* the appearances of which we are immediately conscious, are in the mind. In the external thing there are qualities, which are certain powers to produce ideas in us. Some of these qualities, which we may call original or primary, are inseparable from things, and exist in things as we perceive them. In other words, our ideas of them truly resemble them, and give us correct information as to what they are. These primary qualities of bodies are their solidity, extension, figure, motion, or rest, and number. But things can, by their primary qualities, produce in us many sensations which do not truly represent anything in the things themselves. Such effects upon us of the primary qualities are colors, sounds, tastes, odors, pains, etc. These must not be considered as outside of the mind. They are internal effects of the action of an external

[1] "An Essay concerning Human Understanding," Book IV, Chapter XI, § 3.

reality, and must not be projected outward. The bulk, number, figure, and motion of the parts of things are really in them whether we perceive them or not. But colors, tastes, sounds, and the rest, vanish, when the perceiving sense is withdrawn, into nothingness.[1] When once this distinction is grasped, it is easy to see how there may be a varying appearance of an unvarying reality, and it is possible to distinguish the latter from the former.

Thus I recognize the fact that the tree seen now as small, faint, and blue, and now as large, vivid, and unmistakably green, has no real color at all. The whole series of colors, and, I must add, the whole series of sizes given in vision, must be regarded as a series of effects produced upon my sense by an external thing that cannot be said to resemble any member in the series. If I am near the thing, it looks green and it looks large; if I am far away from it, it looks blue and it looks small. This is as it should be. When things act upon me under varying circumstances, they should produce varying results. The shifting iridescence of the colors upon the turning neck of Pyrrho's dove need have occasioned him no anxiety, had he been shrewd enough to grasp the truth that the neck remained the same as to "bulk, figure, and motion of parts," and that the play of colors was just where it should be, in his own mind. He could have seized the reality through the appearance, and have saved himself from universal scepticism. There is, then, a real world of things external to my mind, and of this world I can form a just notion by exercising sufficient discretion in discriminating between appearances which really correspond to things and appearances which merely indicate what things are, under such and such circumstances, doing to me. If I fall into error, the fault is mine.

In the above exposition of Locke's doctrine I have modified it in but one trifling particular, and in making this modification I have shown myself a better Lockian than he.[2] At first sight the doctrine appears to be fairly consistent with itself, and to give a plausible explanation of the fact that we do find it possible to draw a distinction between things as they are and things as they

[1] "An Essay concerning Human Understanding," Book II, Chapter VIII.

[2] That is to say, I have argued about the series of sizes which seem to be given in vision as he has about the series of colors, in so far, at least, as to conclude that we cannot regard the "real" size of the thing to be given in any one of the visual experiences.

appear to us. There is certainly something very taking about it to a man at a certain stage of his progress in reflection. It explains the real world, without wholly recasting it; it explains it without abandoning the psychological standpoint of which so much has been said in this volume, the standpoint of common sense and of natural science. The real world is still there, robbed of its colors and certain other things, it is true; but it is there as a photograph is there to represent a painting. One has at least an outline, and some other hints and indications which enable one at will to supply what is lacking. By keeping pretty constantly before one the reasonings out of which this real world has grown, one may come to make it appear, at times, very real.

But even to the man who champions it, it seems often to fade away, and to give place to the less ethereal and more fleshly world of his familiar experiences. When one thinks of shifting colors, faint and distant objects, bitter tastes that normally should be sweet, sounds audible to some and not to others, *et id omne genus*, it grows, as I have said above, more or less substantial. But when one sits at one's desk, lays one's hand on the expanse of color, hears the cheerful ticking of the clock, which loudly reiterates its denial that it can by any conceivable right be banished to any world of phantoms — then this world of colors, sounds, and the rest asserts its right to be regarded as the real world, and the other fades away into the unreality of things merely thought of. The man who reflects seems to live in at least two real worlds, and to live in these alternately. If he always reflected, he might be able to stay permanently in one.

The real world recognized by modern science is essentially the same with the real world of Locke. We are told that nothing exists in the physical universe save matter and energy. Matter occupies space, and may be made to change its position in space. Energy may be regarded as "a condition of matter in virtue of which any definite portion of it may be made to effect changes in other definite portions."[1] Energy may be distinguished as energy of position and energy of motion, and these two are convertible with each other according to certain definite laws. No particle of

[1] G. F. Barker, "Physics," Chapter I. We sometimes meet, at the present day, with a much broader use of the word "energy." The extension of the term does not appear to me to be fruitful. See the account of Ostwald's doctrine in Chapter XXXI.

matter can be created or destroyed; and the sum of the potential and kinetic energy in the universe must always remain constant.

The real world consists, then, of masses of matter distributed in space and moving in diverse ways. It is not to be conceived as a world of colors, sounds, tastes, odors, and the rest. This subjective world, the world of appearances, comes into being when a certain small mass of matter, a brain, is acted upon in certain definite ways by masses of matter in motion. However important the differences between the real world as it was conceived by one who wrote before the days of Lavoisier and Joule, and the world as science now conceives it, the line between appearance and reality is still found where it was before. To the masses of matter which produce appearances we may not attribute more than "their solidity, extension, figure, motion or rest, and number."

But modern science has much to say regarding the intimate composition of such bodies. Where Locke was unable to do more than to speak vaguely of the "insensible particles" of bodies that manifest their existence to the senses by the effects which they produce, we are in the possession of a mass of information very carefully worked over, based upon observation and painstaking experiment, and certainly as worthy of at least a guarded acceptance as is much to which we yield credence, touching the minute parts of things.

According to this doctrine the pen which I hold in my hand is not the continuously extended, motionless thing that it seems to be. It is composed of molecules in rapid motion and situated at considerable distances from each other. A molecule is the smallest portion of any substance which exhibits the properties of that substance. But the molecule itself must not be regarded, as I was at first inclined to regard the whole pen, as one continuous thing. It is composed of atoms, and these atoms may separate from one another and form new combinations with other atoms, which combinations will possess new properties. Thus substances may be decomposed, and out of their elements new substances may be built up. In all such transformations nothing remains unchanged except the atom, which passes from molecule to molecule, enters now into this combination, now into that, is driven about from one end of the universe to the other, but everywhere retains its identity and its peculiar character.

There appears to be no little difference between a view of the

real world which conceives it to be made up of extended things which actually exist as they are represented in our ideas, and this view which dissolves the physical universe into a whirl of atoms, the eddies in which make themselves perceptible to the senses in such ways as to give birth to the colorless phantoms which Locke left us when he robbed us of the secondary qualities of bodies. His real world was at least a something given in perception. This world of atoms we cannot perceive at all. We *conceive* it with pain and labor, and everything that is in it has been wrung from nature by a laborious process of inference. What lies on the surface is always and everywhere to be recognized as appearance. The reality is hidden, and must be groped for. Even when found, it is not grasped directly; we do not perceive it; we only know that it must be there.

But the modification of the Lockian doctrine offered us by the modern Atomism is, after all, only a modification, a development. The doctrine remains, as has been said, very much the same at bottom. There is still an external world of things, and this is not a world of colors, sounds, odors, tastes, etc., but a world of things extended, resisting, moving about in space. By their action upon us, such things cause us to see colors, hear sounds, and the rest. To such a world Locke gave some slight recognition in his assertion that the "insensible particles" of bodies produce effects upon our minds. But notwithstanding this admission of the fact that bodies are composed of minute particles, and that we cannot perceive these as they are, Locke held that we do truly perceive bodies as they are. In other words, he held that our ideas of them truly resemble them. This inconsistency modern science has remedied. It has transferred to the atom what Locke declared to be true of masses of matter as wholes. It does not maintain that we can perceive the atom, but it claims that we can, with some approach to accuracy, truly represent it.

Atoms are extended, and occupy space; they exclude each other from the same portion of space at any instant; they are capable of changing their location and their relations to each other. In short, they are little bodies, endowed with primary qualities, and capable, under appropriate circumstances, of begetting appearances. That they are not immediately perceived is a matter of small importance, and need not in itself affect the question of their reality. We accept as real much that we do not immediately per-

ceive. Even the masses of matter which Locke regards us as perceiving are not, on his own principles, *immediately* perceived. They are represented by ideas; and there is no valid reason for affirming that atoms may not be as truly, though symbolically, represented, as bodies of a larger size.

As to the general nature of the reasonings upon which the doctrine of atoms and molecules rests, that is in no sense occult and beyond the comprehension of the unlearned. One reasons here as one reasons when dealing with things commonly believed to be open to direct inspection. We have abundant evidence that things which cannot, under given circumstances, be directly perceived to have parts, can be seen to have them when circumstances are changed. A mere diminution of the distance between the object in question and the observing eye may be sufficient to reveal the composite nature of what did not before seem to be composite. In the same way, things may turn out to be a mere group of separate things, an agglomeration of discontinuous parts, when they did not at first appear to be of this nature. One need only walk toward a distant clump of trees, or hold a loosely woven fabric between the eye and the light, to be made conscious of this fact. Things, furthermore, that we hastily assume to be at rest, are discovered to be in motion. No one doubts the motion of the minute hand of his watch merely because he does not see it move. Nor is there anything foreign to common experience in the notion of a new set of properties arising out of new groupings of atoms. We have too often put together to make a third thing, differing in its properties from any of its constituents, the sorts of things with which our senses seem to make us acquainted.

All these experiences serve to make comprehensible to us the real world advocated by the man of science. It is still the real world in which we find ourselves when once we have made a distinction between the primary and secondary qualities of matter. Our attention has passed from things to the "insensible particles" of things and their groupings; it concerns itself with very little things instead of with large ones. But we still think of the little things as we thought before of the larger ones of which we conceive these to be parts.

It does not concern me here to describe in detail the reasonings which have resulted in this view of the physical universe, nor even to set forth that view except in the merest outline. I have spoken

briefly of atoms and molecules, but have not even touched upon the speculations which have been hazarded regarding the possible structure of the atom, the explanation of certain of its properties, the nature of the ether, and other matters of the sort, concerning which the physicist speaks with a somewhat hesitating utterance.

Whether atoms remain forever unchanged, or whether they may in the rush of the elemental forces be rent asunder; whether they are to be regarded as bits of matter that are rigid and immobile within their own skin, or whether they may be assumed to be centres of energy analogous to whirling rings of smoke; whether the ether is corpuscular in structure, or whether it is continuous; all these questions, and such as these, concern the physicist rather than the metaphysician. They are matters of detail, and may be passed over by one who desires only to discover where the scientist draws the line between appearance and reality. Even the truth of the atomic theory is not here of great importance. The doctrine may come to be modified, and will be modified or even rejected, if some other doctrine gets to be recognized as a better explanation of the facts of our experience. But it seems safe to predict that any new doctrine that takes its place will distinguish between appearance and reality after somewhat the same way as it does. The history of science reveals that science is in this respect consistently Lockian. There is good reason why this should be so, as I shall try to make plain soon.

From the foregoing it appears evident that, before one can rise to the conception of the material world as it seems to be revealed to modern science, one must have made a distinction, not merely between sensations and things imaginary, but also between sensations of different classes. All sensations may have reality in a sense in which things imaginary have not. Its reference to an external world may still be regarded as guaranteeing a sensation to be a sensation, even after a man has become an unscientific or a scientific Lockian, and has come to regard as merely "subjective" the colors, odors, etc., which he formerly supposed to be qualities of external things. But within the realm of sensations the difference of classes appears to be an extremely important one, and the distinction between the external world as it appears and the external world as it really is, between appearance and reality, seems to be bound up with it. The significance of this distinction between classes of sensations I shall discuss in the next chapter.

CHAPTER IX

SIGNIFICANCE OF THE DISTINCTION BETWEEN APPEARANCE AND REALITY

I HAVE said that the distinction between the physical universe of things existing in space and moving in space and the inner world of the effects, produced by such motions, within our consciousness, seems to present a convenient criterion for separating the real from the apparent. According to this doctrine, the morning stars may sing together as energetically as they please: they can produce no sound unless there be a listening ear and the appropriate medium for conducting vibrations to it. Without is matter in motion; within are colors, sounds, tastes, odors, pains, and anything else that can come under the head of sensation. The physical world is one thing, and the circle of our sensations is another. The one is the realm of the real; the other, the world of appearances.

To be sure, the man who accepts literally the Lockian distinction between ideas and things, occupies the psychological standpoint of which so much has been said earlier in this work. He distinguishes between ideas and the things they represent, places the former in consciousness and the latter outside of it, and, after burning every bridge that can lead from the one world to the other, assumes confidently that he is a citizen of both, and can pass freely between the two, describing in detail their resemblances and their differences.

To Locke, as to every one else, bodies appeared to be, not merely extended, but also colored. He affirmed them to be really extended, but not really colored. On what ground did he thus discriminate between extension and color? One will search his writings in vain for a single scrap of real evidence adduced to prove that some ideas (those of the primary qualities of bodies) have their duplicates in an external world, while other ideas (those of the secondary qualities) are not thus duplicated in things. Locke attempts something like a proof, it is true, but it

is easy to see that his would-be proof consists in taking a given experienced content now for an idea and now for a thing. He contradicts himself flatly, as, indeed, he must. He cannot ride to a satisfactory conclusion, for he has from the outset been astride of a contradiction.

And every modern Lockian, whether scientific or non-scientific, sticks in the same difficulty. If the sounds and colors that I perceive do not exist in a world beyond us, but come into being in me when my body is acted upon in certain ways, why may not the same be true of the resistance, the extension, the motion, that I seem to perceive in things? Can I perceive bodies to be resisting, extended, or in motion, unless they act upon my body? May not the resulting complex of sensations in this case, too, be wholly different from the external cause? Perhaps the real world is not, then, the extended and imaginable thing that I have thought it. Perhaps it is only a name for the unknown, a *something* that I cannot more nearly define.

The man of science usually does not, it is true, strip the real world quite so bare as this. He denies to it some of the qualities it appears to have, but permits it to retain others. His position seems, however, to be one very arbitrarily assumed. He stops where he does, when he seems to us to have a logical momentum which ought to carry him farther. The next stage in his progress would result in the unknowable, and the final stage would bring him to the repudiation of even that shadow. It is only necessary for me, in this connection, to remind my reader of the illustration of the prisoner in the cell,[1] and to insist that even an external Unknowable cannot be attained with the aid of the resources at his command. Watering the external world into utter indefiniteness does not justify the assumption of its existence; the reality of things is not a function of their vagueness.

In so far, therefore, as the man of science distinguishes between appearance and reality by placing the former in consciousness and the latter without it, his position may be justly criticised by the metaphysician. Were no other reality than this attainable, he would be forced to get on without any reality at all. But we have seen that the body of truth presented us in the natural sciences is not to be repudiated merely because the scientist is not also a metaphysician. We may assume that what he has to tell us of the real

[1] See Chapter II.

world is not said of a world of which he knows nothing from direct observation, and which he arbitrarily creates. The distinction between the "inner" and the "outer" worlds is a distinction within consciousness, taking that word in the broad sense. It ought to be possible, therefore, to restate what science tells us of the line which divides appearance from reality, in such a way as to eliminate the contradiction which seems to belong to the natural science point of view.

To do this it is only necessary to examine carefully what is actually done by the Lockian and the student of modern science when they draw a distinction between the real physical world as it is in its nakedness and the variegated garb under which it presents itself to consciousness. That we are able to see clearly the true significance of this distinction we owe to the analytic genius of Berkeley, who in his "New Theory of Vision" first succeeded in turning the light upon what had been a very obscure corner in our experience. Berkeley's analysis has been so frequently repeated by others, and his doctrine, with somewhat insignificant modifications and additions, has been so thoroughly incorporated into the psychology of our day, that I may assume the reader to be familiar with at least its general outline. I shall, hence, not dwell upon it in detail, but shall attempt, in general harmony with it, a brief explanation of the distinction with which we are here concerned.

We have seen in a preceding chapter[1] that, when we ask ourselves what we mean by perceived objects, we discover that they are groups of sensational elements, and we conceive them to be highly complex groups.

My table appears to me as hard, extended, colored, warm or cold, etc. We have seen, furthermore, that my table means to me much more than the particular group of actual sensations that I may be experiencing at any one moment. At this moment I believe the table to have an under side which I do not see, and I regard that as just as truly existent as that which is now in the sense. In other words, I believe that a multitude of sensational elements belong to this group which are never at one time directly perceived to belong to it.

But this is not all. My table is a thing with a history: it has a past, and it will have a future. That is to say, it is not merely a group of sensations conceived of as existing in the present mo-

[1] Chapter VI.

ment. This group is continuous with an indefinite number of sensational elements belonging to the past, and will give place to sensational elements belonging to the future. This amounts merely to saying that I conceive my table, not merely as existing, but as having existed, and as being about to exist in time to come.

It is of great importance to note that, although my table is, in one sense, a unit, it is, nevertheless, a vastly complex group of different elements. This is a truth we are in no small danger of overlooking, and such an oversight can only result in confusion. We habitually speak of seeing the *same* table that we touch, and we declare a table seen to-day to be the *same* with one seen yesterday. What can the word "same" mean when used in such a connection? Can the sense of sight give us anything but colors, or the sense of touch anything but tactual sensations? Is yesterday's experience, either remembered or imagined, strictly identical with the experience of to-day? It was the imperfect recognition of the complex character of the objects of perception, and the misconception of the true nature of their unity, that occasioned Pyrrho's perplexity regarding the apple. The apple appears to the sight to be yellow, to the taste to be sweet, and to the smell to be fragrant. What is the real nature of the apple? How can one thing be all of these?

The difficulty vanishes when we recognize that by one "thing" we mean one group of interrelated elements, of elements so connected that any one may stand for the whole group and give information regarding it. When I say I see the table I do not mean merely that I am conscious of certain color-sensations. When I say that I feel it, I do not mean merely that I am conscious of certain sensations of touch and resistance. When I say that I see and touch the same thing, I evidently do not mean that what is immediately present in the sense in the one case is identical with what is immediately present in the other. It would be mere nonsense to affirm this. By affirming that I see and touch the same thing, I can only mean that the two experiences in question belong to the same group, and that either may be taken as representative of the group as a whole.

But it should be remarked that in such a group of interrelated sensational elements all the elements have not equal values. It was maintained by Berkeley, and his position has, under much

criticism, remained unshaken, that our experiences of touch and movement form a nucleus of such importance in the whole complex which we call an object, that, when we come to distinguish between real and apparent objects at all, it is to this nucleus that we refer when we speak of the real object. All our judgments of distance, of magnitude, of position, have reference to the *tactual* thing, not to the visual, to the auditory, or to any other. Where is the faint blue patch of color which means to me a tree at a distance? Is it half a mile away? When I walk half a mile it is hopelessly lost; it began to change when I first moved, and has been succeeded by an indefinite series of visual sensations no two of which are precisely alike. To regain it, I must go back again to the point from which I started. What is it, then, that is half a mile distant? The tactual core of the whole series of experiences which constitute my experience of a tree. And what is meant by saying that anything is half a mile away? In terms of what must distance be ultimately interpreted? In sensations of movement. As Berkeley has expressed it, the visual element in a thing stands related to the tactual as sign to thing signified. It is the latter in which our thought rests even when it appears to be occupied with the former.

The distinction between sign and thing signified, between such sensations as those of sound or of hearing, and the tactual things of which they give us information, is one rather forced upon us in cases where the sign is not wholly satisfactory, or where reflection faces the task of trying to pick out from a whole series of signs the one which shall be regarded as in a special sense belonging to the object. This we saw in the last chapter. We saw also that, in certain cases, it is exceedingly difficult to realize that we must still draw the distinction. It is not very hard to distinguish between a faint blue patch of color and the real tree; but as I sit at my desk, lay my hand upon it, and explore its surface with my eyes, it is hard, indeed, to realize that what I see and what I touch are not strictly the same, that they are not identical, but are merely diverse elements in the one complex group of sensations. The thing seen seems to correspond so exactly to the thing touched, to share so absolutely its extension and position, that it appears impossible to divorce them. The sign is so satisfactory that it has fused completely with the thing signified, and I can no longer distinguish between them. I am forced to exclaim: Is not this

expanse of color really extended, and seen to be extended? Does not the color occupy the same place as the thing touched? How, then, can one maintain that all our judgments of distance, magnitude, and position refer ultimately only to the world of things tactual? How hold that these conceptions have no other content than that which is furnished by sensations of touch and movement?

Those who have grasped but imperfectly the significance of Berkeley's analysis are inclined to maintain that these conceptions may have another content. Sensations of all classes, it is claimed, have the quality of voluminousness, they have an "extensity" which is, in embryo, the notion of space. This is the primary intuition of space, which may be furnished by any sense; and the question arises how these various spaces, tactual and motor, visual, auditory, and the rest, are joined together into the one space of our developed and interrelated experience.

But those who reason thus have fallen into error through overlooking a distinction of fundamental importance. They have confused "extensity," the primary experience of voluminousness, with "extension"; they have confounded an experience assumed to be taken in its naked simplicity, with the same experience supplemented by its interpretation in terms of a different kind.

Undoubtedly the extensity of sensations of all classes is not without its significance. The retina of the eye is a surface, and the stimulation of a small part and that of a larger part would make themselves known in consciousness by some difference in the resulting sensation. It would be impossible to interpret visual sensations in tactual as we actually do; it would be impossible to recognize one part of the visual experience as referring to one part of the tactual object and another part of the same experience as referring to another, were the visual experience itself not composite.

But it is one thing to admit this, and another to maintain that the mere consciousness of the visual sensations as thus composite would give us a notion of extended things in any way comparable to that which we possess. Introspective analysis reveals that when we imagine a line, a surface, or a solid, we do more than merely to recall into consciousness a certain quantity of visual sensation. The imaginary line or surface is conceived as vaguely localized in space. It is out beyond us, looked at from some more

or less definite point of view, and we measure it by moving an imaginary finger to it and along it. It is visual sensation as interpreted, not visual sensation pure and simple. The sign upon which we have elected to gaze has dragged in with it the thing signified. We are dealing with a *real* line, not with a merely visual experience.

Had we never had sensations of touch and of movement, it would, of course, have been impossible for us thus to reduce other sensations to the subordinate position of signs. The extensity of the sensations allowed us might then have played an independent rôle of some importance. But as things are, we must recognize the fact that sensations other than those of touch and movement, notwithstanding the fact of their extensity, do not give us spaces or places at all; they stand merely as the signs of such spaces or places, and such spaces or places are tactual. All space is tactual space. Colors do not occupy the same place as the tactual things to which they belong. They do not occupy space at all, nor do sounds or tastes or odors. Thus we see that the problem of joining together the chaotic mass of elementary spaces furnished by the different classes of sensations gives place to another. That problem is: How does it come that all other classes of sensations find their interpretation in sensations of touch and movement? Why do the latter constitute for us the real thing rather than the former?

It is to be noted that the group of sensations we are now discussing, the "real" core of a material object, is, as compared with sensations of other classes, relatively constant and unchanging. The visual sensations which make me aware of the presence of a real thing may vary within very wide limits. I may have a good look at a man, as I express it, and a very complex mass of color-sensations, giving much information regarding the tactual object, is present in consciousness. I may see him at a greater distance, and the visual sensations experienced are very different. I may see him still further away, and the visual object is reduced to a mere speck of faint color. "The visual object" does not mean in the one case what it does in the other. Neither quantitatively nor qualitatively does it remain unchanged. Yet I regard the real man as unchanged in size. I know that if I approach sufficiently near to pass my hand over him, I shall find that he *feels* much the same at different times. The world of objects made known to me

in sensations of touch and movement is not so fluctuating a world as that which reveals itself in vision.

Nevertheless, as directly revealed in sensation, it is not an absolutely constant world. An object as known to the sensitive finger-tips, and the same object as measured in terms of the sensations furnished by a less discriminating part of the body, are not felt to be strictly the same. A body lifted by a wearied arm feels heavier than the same body lifted by an arm which is fresh and vigorous. But a multitude of experiences has revealed to us the fact that the world of tactual things is one the objects of which can be accurately measured in terms of each other, and this furnishes us with a system of quantitative relations relatively independent of the immediate consciousness of quantity given in particular experiences.

No one judges that a stick is exactly a metre long by simply passing his hand over it. The stick is compared with a standard, and this standard is recognized as holding definite and constant relations to the things which make up the tactual world. The immediate experience, as such, is overlooked; or perhaps I would better say, is referred to, and is judged in the light of, the whole system of relations which obtain among tactual things. A heavy basket, carried for half a mile, seems to increase in weight, but no one dreams of judging that the weight has really increased with the length of the journey. If there is any doubt about the matter, there are the scales.

It was pointed out by Berkeley that tactual things are more important to us than visual, since it is chiefly through their tactual qualities that objects affect us for good or ill. This has frequently been emphasized since as helping to account for the fact that our other sensations fall into the place of signs and our sensations of touch and movement acquire a certain primacy. It cannot be denied that sensations which are for any reason important to us tend to stand out from the others, and those which are less important tend to be regarded as marks of the former. This is true of other classes of sensations than those of touch and movement. But the most important element in the prominence given to our sensations of touch and movement appears to be their susceptibility of accurate measurement. They fall into an interrelated system which is capable of accurate description, and through their relations to which sensations of other classes may be given that orderly

arrangement which constitutes the difference between a chaos and a world. We explain the variations in the visual object, the changes in the loudness of a given sound, by a reference to things tactual, by the introduction of the notion of distance. It is, perhaps, an interesting speculation whether a consciousness without such a "core" as I have been discussing could contain a world — whether the other classes of sensations could, by direct relations to each other, form a system at least analogous to the one we know. But whatever may be our conclusions upon this point, we are forced to admit that in the system of our experiences the tactual world is the very foundation of the whole. It is what we mean by the *objective;* other elements of our experience are by contrast *subjective.*

Such an objective world is recognized by the unreflective. It is the world in which I rest when I insist that I *see* the real desk before me as it is and reject the suggestion that I am deluded by an empty appearance. I confound sign with thing signified, it is true; but this particular sign gives me the thing so satisfactorily that I rest in the thing without being forced to the recognition that I am grasping it, so to speak, at one remove. This is the external material world of Locke, the world of the primary qualities of matter, the world of "solidity, extension, figure, motion or rest, and number." It is the physical world of matter and motion of which science treats.

It has been intimated in the last chapter that the description, which science is in a position to give us, of the mechanism which it conceives the physical world to be, is extremely fragmentary and incomplete. The ether, the atom, the molecule, these are not characters with whose attributes and modes of life we are intimately acquainted, and to whom we may assign parts in our drama with an unshaken confidence that we are mirroring real life. The doctrines of the eternity of matter and the conservation of energy are very broad generalizations made upon but a slender basis of observed fact. In the present state of our knowledge, the attempt to demonstrate to an unwilling mind that the notion of mechanism is not out of place, at least in the realm of the organic, must surely be a signal failure. That the world is the mechanism that science conceives it to be is rather a matter of faith than of certain knowledge. To overlook this fact is to misconceive the methods and results of scientific research. But, on the other hand, it is well to remember that a dogmatic denial that science is right in its guesses

at the truth cannot find its justification in the limitations of human knowledge. An appeal to our ignorance is not out of place as an argument against a hasty and inconsiderate assent or against overconfidence. It is out of place as an argument in favor of unqualified denial.

In a later chapter I shall discuss the arguments usually urged against the scientific view of the mechanism of nature. The answer to them may be conveniently deferred until after we have seen more clearly what that view is. But here I wish to take up and examine at some length a general objection against the reality of those things which science regards as *the realities* which make up the external world of things.

The objection, when fully understood, may be seen to impugn the reality, not merely of the world of atoms and molecules actually vouched for by science, but also that of any such unseen world which the progress of scientific research may hereafter seem to justify us in assuming to exist. It is an objection to the validity of the conclusions which may be arrived at by the science of the future, as well as an objection to the conclusions arrived at by the science of our day. It may be summed up as follows: The real world described by science is, after all, a mere product of the constructive imagination. It is not and cannot be a something actually given in sensation. Nobody has directly perceived either an atom or a molecule, and perhaps nobody ever will. Hence, to call such a world the reality, and to reduce to the rank of mere appearance the world of things actually given in our experience is absurd. It amounts to making the hypothetical and uncertain more real than the immediate and the certain.

This objection seems, at first sight, to be rather plausible. But a little reflection makes it evident that it draws its whole force from a misconception of the meaning of the word "real." It has been pointed out that, when we recognize anything as real, we are never confining our attention to the thing itself, but are always keeping in view its relation to other elements in our experience. This is true whether we are speaking, as ordinary mortals, about the things which concern us in common life, or, as men of science, about the realities to which science pins its faith. To the plain man the real is that which takes its place in a certain orderly system which he finds within his experience; the unreal is that which defies such an arrangement.

Nor must the expression "which he finds within his experience" be misunderstood. The system of experiences which constitutes the real world as conceived by the plain man is less complicated a construct than that which constitutes the real world of the scientist, but it is none the less a construct. It exists in large part in the imagination, as we have seen. When we say that he finds it, we can only mean that he is not conscious of having built it up for himself. What is actually in the sense at any moment can constitute but a very small portion of his total real world. When such a man first feels the prick of the Pyrrhonic doubt, he may hesitate to affirm that this or that element really belongs to the perceived object in which he is interested, and yet he cannot but feel that certain members of the class of experiences he has come to doubt may seem to him more real than the others. For example, it seems to him more reasonable to affirm that a man really is as he looks when seen near at hand, than that he is as he looks when seen at a distance. The visual experience in question is not picked out from the series to which it belongs at mere haphazard. It is chosen because it is the most helpful in giving further information regarding the system of his experiences.

When the Lockian distinguishes between the primary and the secondary qualities of bodies, he is drawing a distinction of much the same kind. He is separating out from the mass of his sensational experiences a certain group which can be made to fall into a definite and measurable system, and which can serve as a means for relating and ordering sensations of every kind. And when the scientist passes from the physical world as it seems to be revealed to us in sensations of touch and movement to a world of atoms and molecules, why is he inclined to regard the latter as the real world and the former as the world of appearances? It is because the atoms and molecules which he conceives as constituting the masses of matter with which his senses seem to make him acquainted help to make more complete and comprehensible the mechanism which appears to him to be revealed, at least in outline, in his experience of things. Their incorporation into the scheme of the universe is supposed to explain what has lacked explanation, and to unite our experiences into a more perfect system. Their assumption is by no means an arbitrary one. It is an extension of our experience in thought, and is only justified if it be based upon what is actually given. The world of the scientist is *the* real world, just because

it is the completest and the most satisfactory world which we have attained to up to the present.

Thus we see that the word "real" is by no means synonymous with "intuitively present in consciousness." The plain man accepts as real much that is not immediately given. The Lockian does the same. The believer in the existence of ether, atoms, and molecules follows in their wake. To argue that these things cannot be real because they are not immediately given in the sense is absurd. What is immediately given in the sense is not sufficient to make any one of the real worlds that we have been discussing. It is sensations as supplemented by remembered and imagined sensations, and thus built into a system that constitute even the real world in which I find myself before I have fallen a victim to the Pyrrhonic doubt and have set about the task of critical reconstruction. What I *see* of my desk at this moment is not in itself enough to constitute a desk, nor can it do so when combined with what I actually feel. The reality is always more than is given in the sense. It is absurd to say that we should turn our backs upon the abstractions of science and find the real world in a return to immediate experience.

We know no such thing as immediate experience of a real world, if by immediate experience be meant an experience in which the fragmentary consciousness-contents actually in the sense are not supplemented by others and assigned a place in a system vastly more complex than they are themselves. The difference between the real external world as it stands revealed to the plain man and the physical world as it is conceived by science is by no means an absolute one. In neither case is a given object declared to be real simply because it is intuitively present in consciousness. In each case we are dealing with a construct, and objects are called real when it seems reasonable to assign them a place in that construct. In a consciousness too elementary to contain such a system there could be no distinction of real and unreal. The reasoning which would deny the real existence of the atom on the ground that it cannot be directly perceived should, in consistency, deny that the moon has more than one side — nay, it should go farther than that, and should maintain the existence of no more than the scrap of color-sensation which is in the sense when the eyes are directed toward the moon. It was because Berkeley inconsistently fell into this error and misconceived the true significance of real existence,

that he was forced to save the continuous existence of real things by assigning to them an actual existence in a Divine mind between the intervals of their perception in finite minds.

But if, in view of all this, we maintain that science is justified in regarding the world of atoms and molecules as the real world, and in reducing to the rank of appearance what is directly given in sensation, does it not seem to follow that the only reality left us is a hypothetical and uncertain reality which may conceivably have no existence at all? Science does not pretend to be infallible. Its account of the constitution of the physical world may turn out to be — not merely incomplete, for it is admittedly that — but fundamentally incorrect. Should this be the case, would we be left with *no* reality?

To this I answer: By no means. We have seen that our sensations as a whole constitute an interconnected system. A sensation is recognized as such because it holds a place in such a system. As holding such a place it is *real*. When, within such a system, we distinguish a nucleus which is peculiarly serviceable in definitely ordering and arranging the whole, certain of our sensations take the place of signs and others come to hold the more dignified position of thing signified. Here we have the distinction between appearance and reality. But the application to any given complex of sensations of the term "appearance" does not in the least do away with the reality to which it may lay claim, in that it is a complex of sensations. If it did not belong to one system with the thing signified, it could not serve as a sign. And when, from tactual things as they seem to the Lockian to be directly given in the sense, science passes to tactual things as they are conceived to be, there is a new distinction between sign and thing signified, and a new distinction between appearance and reality. Things as they are conceived to be, furnish a better explanation of the system of things as a whole, and hence they are regarded as more real. If now it be discovered that science has fallen into error, and that tactual things as it conceived them to be, do not render more complete and consistent the system of our experiences as a whole, the reality of these tactual things will have to be repudiated. They must be cast out of the system, and their real existence denied. But in that case we are left with the reality we had before we put our faith in these things. The system of our experiences remains, to be

sure, a very imperfect system, but then we are at liberty to make new efforts to render it more complete. The goal towards which all such efforts are directed is the attainment of a complete and wholly harmonious system. Such a system is what we mean by ultimate reality.

But here we are confronted with a very significant problem. Is it within the bounds of possibility that science should attain to — not reality, for reality in some sense is attainable even by the unscientific — but ultimate reality, a reality which cannot, in its turn, be relegated to the subordinate place of appearance? The world is spread out in space. It exists in time. Both space and time we conceive to be infinitely divisible, which means that we conceive that no portion of either is so small that it is not composed of portions still smaller. If, then, science rests, let us say, in the atom, and takes this for its ultimate unit in the explanation of the mechanism of nature, it rests in what cannot be regarded as ultimate in any absolute sense of that word. The size of an atom appears to be as legitimate an object of investigation as the size of a planet. It is not apparent why an investigation into the intimate structure of matter, which results in the atom, should not be continued as an investigation into the intimate structure of the atom itself. How shall we account for the properties of the atom, and explain its ability to play the rôle assigned to it in the mechanism of nature? That the need for such an extension of our knowledge has been felt by students of physical science has of late years been made sufficiently evident.

Again: the description of the changes which take place in the physical world we conceive as a description of occurrences in time. If time be infinitely divisible, there can theoretically be no limit to the degree of minuteness with which such occurrences may be described. We may, it is true, describe a series of occurrences roughly by indicating a few of the most striking or of the most interesting stages in the process in question. This we do when we relate a tale of adventure, or give an account of the passing of a procession. But such a description resembles a description of the solar system which stops with the sun, the planets, and their satellites. It is only the gross anatomy of the machine that has been given. The occurrences which we loosely indicate we conceive to be made up of, and interconnected by, other occurrences, which in their turn may be analyzed, etc. How can we

regard the description at any given stage as ultimate, and as giving us a final account of what has really taken place?

Space and time are the warp and woof of that "invisible net" in which we conceive the real world to have its being. I shall, hence, turn to an examination of these, and shall make no apology for discussing them at considerable length.

But before I bring this chapter to a close, it seems necessary for me to take up again and to modify, in the light of the foregoing, the provisional statement, that a sensation is known to be such from the fact that it takes its place among those elements of our experience which so connect themselves together as to form what we recognize as the system of material things.[1]

Has it not been shown that a man may recognize a multitude of experiences to be sensations, without being compelled to regard them as constituents of the external world at all? And has it not been shown that he may believe in an external world which can never be given as sensation — the unperceived world of atoms and molecules? It is clear, then, that the statement should be modified. How shall we modify it?

We must remember that all our scientific constructions are based, in the end, on the common experience of things with which we are familiar. From this we must set out in every attempt to increase our knowledge and to render it more accurate. In common life, the things about us are the real things, *i.e.* the real things are constituted by sensational experiences. When the plain man distinguished between the faint patch of color, as appearance, and the house seen from a nearer point, as reality, both appearance and reality are — each in its turn — to be accepted as experiences of an external world, and to be regarded as constituted by sensational elements.

Now, when, with the scientist, we come to regard colors, odors, tastes, etc., as subjective, and accept a real external world, not immediately perceived at all, to which such elements are denied, we have passed beyond the relatively simple construction with which we stop in common life. But it should be remarked that all the elements which enter into this more elaborate construction, subjective elements as well as those which represent the supposed external reality, hold the same sort of relations to each other that

[1] Chapter VI.

are held by the elements that constitute the world as perceived by the plain man.

Let us, then, modify the above-mentioned statement by saying that a sensation, to be recognized as such, must belong to the one system with the elements in which the world of material things is revealed. Even this statement does some injustice to the word "sensation," as the reader will see when he comes to Chapter XXIII; but he will then see also, I hope, that I have had good reason for using the word "sensation" as I have done in this and the three preceding chapters. There seemed to be no better word to use. And with this I must leave the subject for the present.

CHAPTER X

THE KANTIAN DOCTRINE OF SPACE

THE plain man is apt to think of space as a real something beyond consciousness, in which the material things which he sees and feels exist and move. A little questioning reveals clearly that, concerning the nature of this something, he has the vaguest ideas. It is not matter, and it is not like matter; but it undoubtedly exists, and it is plainly indispensable to the existence of material things. He hesitates to affirm that it may properly be called a "thing" at all; but, "thing" or not, he is sure that it exists, and believes that it would continue to exist even if every material thing were annihilated.

Touching some of the properties of this perplexing something, however, he regards himself as having very definite bits of information. Space is three-dimensional; it is homogeneous in all its parts; it is infinite in extent; every portion of it is infinitely divisible. It is, in other words, an infinite *continuum*, which must be granted real existence if the world of matter is to be allowed any reality at all, and is not to be reduced to a mere semblance of a world, an unreal dream.

We shall see later that there is much truth, as well as some misconception, in the plain man's views touching the nature of space. One thing we may object to at the outset, and that is the assumption that space is a something quite beyond consciousness, and hence, quite cut off, as reflection shows that all such things must be, from the sphere of our knowledge. We would do the geometer little good by granting him, as the sphere in which he is to exercise his activity, an unknowable, unredeemed by even the gleams of meaning which are usually involuntarily allotted to unknowables. The plain man stands, as I have in earlier papers pointed out, upon the psychological standpoint, assuming an external world wholly cut off from his knowledge, and yet somehow known to him. He

has grasped dimly the distinction of subjective and objective, and he expresses himself inconsistently. He must not be taken wholly at his word. But so much has been said on the absurdity of assuming a world wholly beyond consciousness and not made of "consciousness-stuff," that I shall assume that I need not discuss this in approaching the subject of space and time.

I propose to examine, as briefly as I may, the two leading forms of doctrine which have been advanced in modern times touching the nature of space and time, and which to this day dispute the field between them. These I shall call the Kantian and the Berkeleian, using these appellations in rather a broad sense to indicate types of doctrine, and without meaning to make either philosopher responsible for later additions to, or alterations in, the structure which he reared upon the foundations that he himself laid down.

Neither doctrine quite falls into the vulgar error of making space and time "things," and neither regards them as "external" in the peculiar sense of the word to which I have alluded above. In both doctrines space and time are treated as "form" and not as "matter," *i.e.* as the arrangement, the system of relations, which obtains between certain contents of consciousness, and not as those contents themselves. The two doctrines have a good deal in common, but they are, nevertheless, marked by differences of no small importance; and the one which has had the more general acceptance precipitates its adherents into difficulties so great and so hopeless that it seems surprising that they have not incited to a more widespread disaffection and a final revolt. This doctrine is the Kantian, and to it we will now turn our attention.

We will first take up Space. According to the Kantian doctrine, our knowledge of space is not a something at which we arrive as the result of an elaboration of our experiences. Space is not a construct for which our original experiences merely furnish the data. It is the necessary "form" of the intuitions of the external sense, and is given complete in every such intuition. Kant held that: (1) Space is a *necessary* "form" of thought, and, hence, we cannot conceive the possibility of the non-existence of space, although we can easily conceive of the non-existence of objects in space; (2) we can represent to ourselves but one space, of which all spaces are parts; from which it follows that space cannot be conceived as limited; (3) all space is composed of spaces; that is, space is infinitely divisible, and that which fills

space, the "thing" given in sense-intuition, must be infinitely divisible, too.[1]

In criticising the Kantian doctrine, it is necessary to distinguish clearly between what may be implied in regarding space simply as the "form" of certain intuitive experiences — as the "formal" element which, in union with the "material" element, constitutes these experiences — and what may be supposed to follow from the assumption that space is a *necessary* "form" of thought, of such a nature that we are compelled to think space as infinite, infinitely divisible, and incapable of being thought as non-existent.

To make this distinction clear, I will take a concrete instance. In looking at the table before me, I am conscious of a complex of color-sensations. This Kant would have called a "manifold of sense." In this complex I can distinguish between "form" and "matter," *i.e.* between sensational elements and their arrangement. I may regard the "form" in my complex as something equally original with the "matter," and, if I choose, may attempt to account for it by saying that it is due to the nature of the mind — that in this way and in no other must the mind arrange its sensations of color. Bearing in mind what psychologists tell us about the importance of sensations of touch and movement, and the way in which other sensations come to stand as signs of these, we may amend the above by remarking that we are really concerned with a tactual thing for which the visual complex under discussion stands as a sign; but that will not affect the distinction which has been drawn between "form" and "matter." We still have to do with a complex in which the two elements are distinguishable, and we should not forget just what we mean by "form" when we are drawing the distinction. It is nothing occult or mysterious. It is a certain element in a given experienced content, and nothing else. In the given instance, it is the arrangement of the tactual sensations which we have in mind when we say that we see the table.[2]

[1] "Critique of Pure Reason," Transcendental Æsthetic, §§ 2, 3, and 4; Antinomies I and II, and Observations.

[2] It will be seen that I treat "form" and "matter" as irreducible elements, as does the Kantian. The best argument for the opposite view that I know is contained in Professor James's "Psychology" (Chapter XX, pp. 149–152), but I do not find it wholly convincing. I wish, however, to point out that the argument contained in these papers in no wise hinges upon the decision given to this question. Whether "form" be ultimately distinct from, or identical with, sensation, is something one may leave undecided while following my argument.

But the space given us in such an *intuition* is limited. It is coextensive with the "matter" of which it is the "form," and is not a something which extends beyond it. It is limited because the whole complex is limited, and, judging from this experience alone, there appears to be no more reason for assuming the formal element to be infinitely extended than for assuming the material to be so. If I were intuitively conscious of an infinite extent of color (or tactual) sensation, I should have an *intuition* of infinite space (the formal element in this experience), for both "form" and "matter" would be limitless. Or if, failing this, I were conscious of a certain limited amount of color-sensation, and were, further, immediately conscious of a boundless space extending from the limits of the bit of space filled by the sensation (assuming that one may be conscious of pure space), then, too, I should have an intuition of infinite space. But to extract an intuition of infinite space from the patch of sensation with which I started out is an impossibility. I can succeed in doing so only by juggling with the word "intuition." The statement that infinite space is given in intuition is palpably absurd when the word "intuition" is taken in its strict sense. It does not mean that we have reason to believe that space is infinite, nor that we are forced to think that space is infinite. It means that we are immediately conscious of every part of space, as I am conscious of the bit of space within the limits of this patch of sensation. Can any one seriously maintain so absurd a doctrine?

It may, however, be maintained that we have an intuitive knowledge of infinite space in a somewhat different sense of the word "intuitive." That is, it may be held that we *know intuitively* that space is infinite. This does not mean that we are immediately conscious of infinite space, but merely that we know space to be infinite, and know it without being compelled to prove it in any way. It is a "necessity of thought." An interesting chapter might be written on what have commended themselves to the philosophers of past ages as necessities of thought, revelations of the inner light, etc. But I leave this tempting subject, and content myself with pointing out that it is a counsel of prudence to be oracular regarding necessities of thought, and to advance them without attempting to prove that they must be accepted as such. Those who have attempted to prove that we must accept the infinity of space as a necessity of thought, or as an intuition in

the second sense of the word, have offered highly defective evidence of the fact. "We are," says Hamilton, "altogether unable to conceive space as bounded — as finite: that is, as a whole beyond which there is no further space."[1] "We find ourselves," echoes Mr. Herbert Spencer, "totally unable to imagine bounds beyond which there is no space."[2] It is inferred from this that we *must* think of space as infinite.

But what is it that these philosophers have invited us to attempt? When scrutinized, Hamilton's argument is seen to be nothing more nor less than this: We are altogether unable to conceive space as bounded — as finite; that is, as a whole *in the space beyond which* there is no further space. The word "beyond" in his argument has no meaning whatever except as it refers to space beyond, and Hamilton has simply set up a contradiction for us to tilt at. He asks us to imagine a limit, with a space beyond it, and at the same time no space beyond it. When we have had a "go" at this, and feel low-spirited over the result, he tells us with an air of mystery that we are in the clutches of a "necessity of thought." Whatever may be said for or against the necessity of thinking space as infinite, it is clear that this demonstration is a mere quibble. It has been, however, a very popular quibble.

The doctrine that space is a necessity of thought in such a sense that, although we can annihilate in thought all objects in space, we cannot conceive the non-existence of space itself — this doctrine rests upon a similar misconception. There seems no reason at all why, if by space given in intuition we mean only the formal element in a given sensational experience, we should not be able to think away the space with the "matter" of which it is the "form." But we must not set ourselves a contradictory task, and erect a theory over our failure to accomplish it. "We can never represent to ourselves the non-existence of space," says Kant, "although we can easily conceive that there are no objects in space."[3] But what does one do when one tries to imagine the non-existence of space? One first clears space of objects, and then one tries to clear space of space in somewhat the same way. We try to "think space away" as we express it, which does not mean

[1] "Lectures on Metaphysics," XXXVIII. [2] "First Principles," III, § 15.

[3] "Critique of Pure Reason," Transcendental Æsthetic, § 2: "Man kann sich niemals eine Vorstellung davon machen, dass kein Raum sei, ob man sich gleich ganz wohl denken kann, dass keine Gegenstände darin angetroffen werden."

that we turn all thought of space out of our mind, but that we try to think it away as we have thought objects away, by clearing it away from something, and having that something left.

The attempt must, of course, fail; but then it is foolish to make the attempt. That this is what is commonly attempted I think certain. It is what I did, with a good deal of satisfaction to myself, during the years when Kant's position seemed to me well taken, and it is what I have an impulse to do now when I read the above-cited sentence from the "Critique." So far as I can learn from their own accounts of their experience, it is what others try to do when they find it impossible to think space as non-existent. They try to annihilate space, and yet keep in mind, so to speak, the place where it was. They try to make a *Vorstellung* of the non-existence of space, *i.e.* to keep before the mind some intuition of the external sense, and yet annihilate its "form," which is manifestly self-contradictory. We have here one of the countless instances of what may be called "the philosophic fallacy" *par excellence*. It is the special weakness of the philosopher to say "I go," and then not go; to set about abstracting from something, and then not abstract from it; to offer to clear the ground, and then to leave an array of stumps which must trip up the feet of the unwary.

The deductions which have been made from these supposed necessities of thought are rather startling, and should in themselves, I think, be sufficient to arouse a suspicion of the foundations upon which they rest. In the proof of the Antithesis of his famous First Antinomy, Kant offers an *a priori* demonstration that the sensible world must be conceived of as unlimited in extent. To be sure, he also offers what he regards as an equally satisfactory proof of the contradictory proposition; but as readers of Kant know, this does not mean that he believes his argument to be defective. The argument for the infinitude of the sensible world, which he brings forward as logically unexceptionable, is as follows: —

Space is infinite; hence the sensible world, if it be limited, must lie in the infinite void. But space is not an object; it is only the "form" of possible objects. Hence space may be limited by phenomena, but phenomena cannot be limited by an empty space beyond them. It is, therefore, impossible that a void space should project beyond the limits of a finite world of sense. The

space beyond any given limit must, then, be *filled* space, and we must conceive of the sensible world as infinite in extent.

It is clear that in this argument Kant plays fast and loose with the reality of space. He seems to make it a thing, or something like a thing, and yet not precisely a thing. We have seen that he regards it as real enough to persist in remaining when we think away all objects in it. Here we see that he regards it as real enough to be limited by phenomena, if it be a space within the world of sense, but not as real enough to limit phenomena by extending beyond. His argument is, in effect: Space is infinite (assumed as an intuition in the second sense of the word); it is not enough of a thing to exist by itself; it must, then, be filled in with something; this something must be infinite as space is; *ergo*, the world is unlimited. These are scholastic subtleties, and it seems odd to me, at least, that they should have been advanced by so acute a thinker as Kant; and yet these reasonings seem to appeal to some vigorous minds even in our day.

It is always safe to be on one's guard against so-called necessities of thought and the deductions which are drawn from them. Those who have elected to regard space as a "necessary form" of external intuition, or as a "necessity of thought," may easily be misled by these phrases into accepting as self-evident what is not merely not self-evident, but is even founded upon very questionable reasonings. There is, to be sure, no doubt that the statement that space is infinite seems to be a reasonable one even to the man who regards it as by no means certain that the universe of matter is infinite. What we mean by the statement that space is infinite, and why it commends itself as a reasonable one, I shall try to make clear later. We shall see that, to explain this general readiness to regard space as infinite, we are not forced to fall back upon such doubtful arguments as the impossibility of thinking a space beyond which there is no space, or the impossibility of imagining the non-existence of space.

So much for our intuitive knowledge of space as infinite and "indestructible." Intuitions of this kind are no better than the fateful horse which brought ruin to Troy. They may be had as a gift, and they are big with disaster to those who receive them. But if we confine ourselves to intuitions in the first sense of the word, may we not escape such difficulties? In the table which I perceive before me, I distinguish "matter" and "form." The

"form" — the system of relations — is as immediately given as the "matter." In holding that some space, at least, is directly given in intuition we do not, hence, seem to be juggling with the word or using it in an ambiguous sense.

But when we examine more narrowly what is implied in such an intuition of space, we are at once confronted with certain venerable difficulties that have exercised the ingenuity of mankind almost from the beginning of reflective thought. Space we regard as infinitely divisible. Every space, however small, must, then, be made up of spaces, never of points. It follows that what fills space must also be infinitely divisible.

Thus every "intuition of the external sense" must be infinitely divisible. It cannot be denied that when we divide up into its parts any given sense-experience, we speedily come to what appears to be no longer composite. A line perceived by sight, for example, does not appear to be composed of an infinite number of line-portions. Subdivision *seems* to result in visual points not composed of parts. The *minimum sensibile*, as it has been called, is not directly perceived to have part out of part.

So much is admitted even by those who maintain that we have an intuition of space as infinitely divisible. The *minimum sensible* does not present itself in consciousness as "a manifold with its parts external to each other." But, says Kant, "since we cannot reason from the non-consciousness of such a manifold to the absolute impossibility of its existence in any intuition of an object, and since it is the latter that is necessary to absolute simplicity, it follows that this cannot be inferred from any perception whatever." [1]

Here Kant has evidently fallen back upon the second sense of the word "intuition," even while discussing intuition in the first sense. We are not directly conscious of an experience as infinitely divisible, but it is assumed that we have an *intuition* of the fact that it is so. As in the case of the infinite extent of space, so in the case of its infinite divisibility, the statement that something is given in intuition amounts only to saying that we *know this or that about* something. We may well pause before accepting as an indubitable deliverance of consciousness such a supposed bit of knowledge; we certainly seem justified in asking *how* we know that our experiences of extension are thus infinitely divisible. If

[1] *Op cit.*, Second Antinomy, Antithesis.

we do not immediately perceive them to be infinitely divisible, does not our conviction rest upon an inference of some sort? How shall such an inference be justified?

Of course, something may be said for Kant's statement that we cannot reason from the non-consciousness of a "manifold" to the impossibility of its existence in a given intuition, provided that his words be understood with a certain limitation. Some things exist in consciousness clearly and definitely, and of some we are very indefinitely conscious. It is quite conceivable that a given content of consciousness may be composite, and yet may not be recognized as such. But it is one thing to affirm that an experience in which we do not seem to be able to perceive part out of part may really consist of parts; and it is quite another thing to affirm that it *must* consist of such parts, and that the parts of which it consists must in their turn be composite, and so on, *ad infinitum*. The last statement is an exceedingly bold one, and should not be allowed to pass without a demand for proof of some sort. Shall we accept it as true merely because we are told that it is a "necessity of thought"?

That Kant did not appeal to intuition, in the first sense of the word, he has himself made evident. "Against the principle of the infinite divisibility of matter," he writes,[1] "whose ground of proof is purely mathematical, the monadists bring objections, which lay themselves open to suspicion from the mere fact that they do not admit the clearest mathematical proofs as giving an insight into the constitution of space, in so far as this is really the formal condition of the possibility of all matter. . . . If we listen to them, we shall have to conceive, not merely the mathematical point — which, though simple, is not a part, but only the limit of a space — but also physical points, which are likewise simple, but have the advantage, as parts of space, of filling space by their mere aggregation. I shall not here repeat the common and clear refutations of this absurdity, which exist in plenty; for it is wholly in vain to try to quibble away the evidence of mathematics by means of merely discursive conceptions. I will only remark, that if philosophy here falls into chicanery in dealing with mathematics, it is because he forgets that in this question one is concerned only with *phenomena* and their conditions. It is not enough to find for the pure *conception* of the composite the conception of the simple;

[1] *Op. cit.*, Second Antinomy, Observations on the Antithesis.

for the *intuition* of the composite (matter) one must find the intuition of the simple. This is by the laws of our sensibility, and, hence, in the case of objects of our senses, wholly impossible."

Here Kant takes a double position, if I may so express it. In the closing words of the extract he falls back upon the assertion that the "laws of our sensibility" make it impossible that the absolutely simple should be given in intuition. That is, he simply invokes the magic of an "intuition" in the second sense of the word. But he has admitted, as we have seen, that the simple may *apparently* be given in intuition. He accepts the *minimum sensibile* recognized by Berkeley and Hume before him, merely arguing that mathematics furnishes proof that this is a false and deceitful *minimum*, a composite masquerading in the attire of simplicity. Kant thus maintains: (1) That what is given in intuition *must* be composite, for, by the law of our sensibility, nothing can be given in intuition that is not composite — which statement, if we accept it as true, ought to close the whole question; and (2) he argues that it is subversive of mathematics to deny the infinite divisibility of what is given in intuition. These positions may be met by maintaining: (1) That the statement that it is a law of our sensibility that the simple cannot be given in intuition is either a baseless assumption, or it is based upon the mathematical reasonings to which Kant refers; and (2) that the opposing doctrine is seen to be by no means subversive of mathematical reasonings, when their significance is clearly understood.

What may be said upon these points will be considered later. Before passing on to this I wish to make clear the difficulties above alluded to, which attach to the Kantian doctrine, and which should be honestly faced by those who elect to become its adherents. It will not do to give them a perfunctory glance, call them logical puzzles, and straightway forget them. As we shall see, they are deserving of most serious consideration.

CHAPTER XI

DIFFICULTIES CONNECTED WITH THE KANTIAN DOCTRINE OF SPACE

More than two thousand years ago, it was argued by Zeno of Elea that motion is impossible, on the ground that, since space is infinitely divisible, no space, however small, can be passed over by a moving body. To go from one place to another, a body would have to pass through an unlimited number of intermediate spaces. That is, it would have to reach the last term of an unlimited series, which is absurd.

The more clearly this problem is stated, the more evident it seems to become that the difficulty is insurmountable. It appears to arise out of the very notion of space and of motion in space as continuous. "The idea expressed by that word 'continuous,'" says Professor Clifford,[1] "is one of extreme importance; it is the foundation of all exact science of things; and yet it is so very simple and elementary that it must have been almost the first clear idea that we got into our heads. It is only this: I cannot move this thing from one position to another, without making it go through an infinite number of intermediate positions. *Infinite;* it is a dreadful word, I know, until you find out that you are familiar with the thing which it expresses. In this place it means that between any two positions there is some intermediate position; between that and either of the others, again, there is some other intermediate; and so on *without any end.* Infinite means without any end. If you went on with that work of counting forever, you would never get any further than the beginning of it. At last you would only have two positions very close together, but not the same; and the whole process might be gone over again, beginning with those as many times as you like."

In this extract Professor Clifford plays directly into the hand of Zeno, although it is no part of his purpose to support the con-

[1] "Seeing and Thinking," p. 134.

tention of that philosopher. He is merely trying to make quite clear what we mean by calling space continuous; and is it not generally admitted that space *is* continuous? But, then, how *can* anything move through space? The difficulties that beset a moving point Clifford has himself admirably exhibited, and again without the slightest intention of unduly emphasizing these difficulties or of denying the possibility of motion. He writes:[1] —

"When a point moves, it moves along some line; and you may say that it traces out or describes the line. To look at something definite, let us take the point where this boundary of red on paper is cut by the surface of water. I move all about together. Now you know that between any two positions of the point there is an infinite number of intermediate positions. Where are they all? Why, clearly, in the line along which the point moved. That line is the place where all such points are to be found."

". . . It seems a very natural thing to say that space is made up of points. I want you to examine very carefully what this means, and how far it is true. And let us first take the simplest case, and consider whether we may safely say that a line is made up of points. If you think of a very large number — say, a million — of points all in a row, the end ones being an inch apart, then this string of points is altogether a different thing from a line an inch long. For if you single out two points which are next one another, then there is no point of the series between them; but if you take two points on a line, however close together they may be, there is an infinite number of points between them. The two things are different *in kind*, not in degree."[2]

". . . When a point moves along a line, we know that between any two positions of it there is an infinite number (in this new sense[3]) of intermediate positions. That is because the motion is continuous. Each of those positions is where the point was at some instant or other. Between the two end positions on the line, the point where the motion began and the point where it stopped, there is no point of the line which does not belong to that series. We have thus an infinite series of successive positions of a continuously moving point, and in that series are included all the points

[1] Op. cit., pp. 143–144.

[2] *Ibid.*, pp. 146–147.

[3] Professor Clifford has used the word "number" in two senses, a quantitative and a qualitative. By number in the latter sense he means simply "unlimited units."

of a certain piece of line-room. May we say, then, that the line is made up of that infinite series of points?

"Yes; if we mean no more than that the series makes up the *points* of the line. But *no*, if we mean that the line is made up of those points in the same way that it is made up of a great many very small pieces of line. A point is not to be regarded as a *part* of a line, in any sense whatever. It is the boundary between two parts."[1]

Surely Zeno would have welcomed all this as directly establishing his position. "When a point moves along a line, we know that between any two positions of it there is an infinite number . . . of intermediate positions." "Infinite means without any end." The positions with which we are dealing are "the successive positions of a continuously moving point." Hence, to complete its motion over any given line whatever, the moving point *must* pass, one by one, an *endless* series of positions, and must finish with the *end* position. If the moral of this is not that a point cannot move along a line, there is no validity in human reasonings.

Again: The moving point must take, one by one, the "successive positions" in the series. Even the (conscious or unconscious) Kantian has his preference in absurdities, and rejects some rather than others. Clifford does not conceive the point as in two positions at once, or as making some ingenious flank movement by means of which it can "scoop in" a whole stretch of line simultaneously. It must move *along* the line, from end to end, taking one position at a time, and taking them in their order. It cannot make jumps, and are not the positions "successive"? Its path seems clearly marked out for it — a smooth road, and without turnings. Alas! the line is "continuous." The point cannot take *successive* positions, for have we not seen that no position can immediately succeed any other on a continuous line? "Between any two positions there is some intermediate position; between that and either of the others, again, there is some other intermediate; and so on *without any end*." Can any living soul conceive the gait that must be adopted by a point, which must move continuously (without jumps?) over a line, and yet is debarred from passing from any one position to the next in the series? It cannot pass first to some position which is not the next, and then get around to the next after a while. That is palpably absurd. And

[1] *Op. cit.*, pp. 149–150.

it cannot pass to the next at once, for there is no next. I can imagine the shade of Zeno rubbing its hands over this development of his doctrine. "The way for a point to get on," says Clifford, "is for it never to take the next step." "Of course that means," adds Zeno, with ghostly laughter, "that a point cannot get on at all."

And what shall we say to the statement that, although "all the points of a certain piece of line-room" are included in the "infinite series of successive (*sic*) positions of a continuously moving point," yet the line is not made up of these points, but is made up "of a great many very small pieces of line"? What are these small pieces of line, which are to be distinguished from the whole series of points? They are not material things, for we are not now discussing a bit of string or a chalk-mark, but we are discussing a geometrical line, an aspect of space. What lies between any two points on the line? More points for one thing. What else? Bits of line. But what are bits of line? When a point has moved over a line, has it done anything but pass through a series of successive positions? It seems reasonable, at first sight, to assume that such a series of positions is what we mean by a line. We are informed, however, that a point is not to be regarded as *part* of a line in any sense whatever. It is "the boundary between two parts." Does the assumption of these bits of line, which are not positions, but lie between positions, make more comprehensible the motion of a point over a line?

Manifestly not. If the bits of line could be supposed to take up some of the line-room in such a way as to reduce the number of points, they might be of some help, but no one supposes them to do this. Bits of line or no bits of line, the moving point must occupy successively all the positions in an infinite series. And if we turn our attention from the points, and confine it to the bits of line, we are no better off. If the number of points is endless, so is the number of bits of line, for these separate the points, which are only their boundaries, and we are forced to ask ourselves how an endless series of bits of line can come to an end in a last bit which completes the line. It is not a whit easier to conceive of a given finite line as composed of bits of line, than it is to conceive of it as composed of points, if we once admit that the line in question is infinitely divisible. We have only added a new element of mystification. What do we *mean* by these mys-

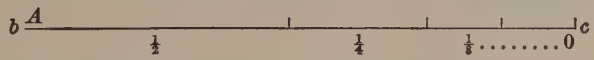
terious bits of line? Has the point which is passing over a series of positions anything whatever to do with them? Do they really separate the positions, so that they must be *jumped* in getting along the series, or does the point, after all, meet nothing but *positions*, never that which separates them?

The attempt is sometimes made to avoid the difficulty of assuming that a point moving over a line can progressively exhaust an infinite series, by laying much emphasis upon the fact that the members of the series are exceedingly small, and can be passed over with great rapidity. Infinitesimal spaces, it is argued, are passed over in infinitesimal times, and all these infinitesimals are included in the finite space and time of the motion. But it must be evident to any one capable of the least clearness of thought that dwelling upon the size of the members of the series, in the case either of space or of time, is wholly wide of the mark. Whether things are big or little, if the supply of them be truly endless, one can never get to the end of the supply. The rapidity with which the terms of the series are exhausted has obviously no effect in facilitating an approach to that which cannot, by hypothesis, exist, *i.e.* to a final term. The proposed solution of the problem rests upon the implicit assumption that, provided only things are small enough, it is legitimate to reason about them in an incoherent way, and to make self-contradictory statements. I know of no way in which this assumption can be defended, unless it be by claiming that it is an "intuition."

If, then, in order to move a body, I must reach the end of an endless series, I may reasonably conclude that I cannot move a body. This is as clear as it is possible for anything to be. No exception can be taken to Zeno's argument, if the assumption upon which it rests be once granted. One is not at liberty to admit that there are difficulties connected with the statement that a point can move along an infinitely divisible line, and to hold that, in spite of these difficulties, the statement should be approved as being the least objectionable that can be made touching the subject. One should bear in mind that this amounts to saying that what is flatly self-contradictory and, hence, intrinsically absurd, is at least less objectionable, as an article of faith, than is something else. I wish to emphasize the fact that no opposing doctrine, try as it may, can possibly be worse. At best it can only succeed in being as bad.

The difficulties arising out of the doctrine of the infinite divisibility of finite spaces have been so long before the philosophic public that it is tired of them, and its sense has grown deadened to their significance. They are recognized; they arouse a fugitive interest; they are made to yield a favorable occasion for a pleasing exercise of the ingenuity, and then they are put back again into their box and their existence is ignored. They are not taken seriously, and the serious interest with which the ancients approached them is even characterized as pathologic. But whether we face them or not, the difficulties are there just the same. They do not become non-existent merely because they are overlooked; and it is surely a crying disgrace to human reason that a theory of the nature of space should complacently be accepted as truth, which admittedly runs into unresolved self-contradictions. So important is it that the reader should clearly realize what is implied in the Kantian doctrine, that I will beg his indulgence while I set forth a rather interesting bit of reasoning, the sole defect in which is that it rests upon the assumption contained in that doctrine. It is, in all other respects, beyond criticism.

Let us suppose a point *A* moving uniformly over a finite line *bc*, at such a rate that it will complete the distance in one second.



Since the motion is uniform, the point will pass over one-half of the line in half a second; it will pass over one-half of the remainder, or one-fourth of the line, in a quarter of a second, etc. When the point has passed over the whole line, it will have completed the descending series: $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16} \ldots 0$.

We may set aside for the present purpose the "difficulties" connected with the point's getting a start along an infinitely divisible line, and with the completion of an endless series in general. We will accept it as a fact that the line is infinitely divisible and can be passed over, in an infinitely divisible second, by a point moving at a uniform rate. All these are good Kantian assumptions. It seems to follow rigorously that both the line and the second are exhausted as our descending series indicates, and that both come to an end only when the series is terminated. The motion can be completed; the second can be completed; the series can be completed. In fact, all three *are* completed simul-

taneously. In the case, then, of a point moving uniformly over a finite line, we have evidence of the fact that an infinite descending series, such as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$ . . . 0, can be, and is, completed.

Now let us suppose a circular disk set revolving around its centre, in the plane of this paper, in such a manner that, at the first revolution, a point P on its circumference is carried around to the place at which it was before in half a second, at the second revolution, in a quarter of a second, at the third, in an eighth of a second, etc. It is clear that at the end of one second from the beginning of the motion the disk will be revolving with infinite rapidity, or, in other words, the time of P's revolution will be reduced from half a second to zero. We have here a descending series of exactly the same kind as the one we had above; the times taken up by the successive revolutions are $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$ . . . 0.

Thus, when the disk is revolving with infinite rapidity, there is no time at all between P's leaving the place at which it was and coming back to it again; which means, if it means anything, that P is *always* at the same place. But, since similar reasoning will apply to any other position through which P is supposed to pass in each of its revolutions (for the interval between its leaving that position and returning to it again is reduced to zero by the completion of the series), we can prove just as cogently that P is in the whole series of positions all the time. We can prove, in other words, that when the disk revolves with infinite rapidity, P is always all around the disk at once.

I suggest this argument to those who incline to the at present rather unfashionable scholastic notion that the whole soul is simultaneously in all parts of the body — *tota in toto et tota in utraque parte*. It may be used as a new weapon of defence, and has the advantage of being based upon principles admitted by their antagonists. If there be any truth in the Kantian doctrine of the infinite divisibility of space and time, why should not the soul be thus ubiquitous? It has only to move fast enough and it may succeed in being everywhere at once. The trick is simple — let it reduce to zero the time between its setting out from a given spot and its getting around to it again. It will, then, never be away from that spot, and it will also always be at every other spot in the line of its vibration.

To those who find repugnant the thought of this midge's dance

of the soul through all parts of the body, I suggest that there is nothing in this doctrine to prevent one from believing that through it all the soul retains the quiet seat in the pineal gland assigned it by Descartes. There it remains, like a spider at the centre of its web; and one can rest one's mind by thus conceiving it. On the other hand, in those heroic moods in which the philosopher loves to emphasize the magic powers which distinguish mind from matter, independence of space and what not, one can reflect upon the storm and stress of its inconceivable motion, — a motion which appears to resemble rest, and yet is its extremest opposite; a motion which consists in being at rest in every place and in no place simultaneously. Then one can proudly maintain that, though the soul be in the pineal gland, it is not imprisoned there, like an impotent lump of matter, hemmed in by the walls of its cell, and unable to break through them. It is there, as it is everywhere, by its own tireless energy — there and not there, there and everywhere, a standing miracle, a living contradiction.

The topic is one upon which an enthusiast might dilate; but even enthusiasm should not be allowed to run into injustice, and the mention of matter reminds me that, for the Kantian, matter, too, may have its magical properties. We began with a revolving disk, and found that a point upon its circumference may be, under certain conditions, all around the disk at once. But if this be so, it must be possible for a material particle in the tire of a revolving wheel to be all around the wheel at once, when the wheel is revolving with infinite rapidity, and, thus, to occupy the same space with all the other particles in its path. Is this a new insight into the constitution of matter? Shall we say that every particle of matter excludes from the space it occupies every other particle when, and only when, its motion is not too rapid? Or shall we say that, although it *is* conceivable that an infinite series may be completed by a point moving along a line, yet it *is not* conceivable that an infinite series can be completed by the revolutions of a disk? Is it an "intuition" that there is this difference between moving points and revolving disks?

But, it is objected, all this is sheer nonsense; no point can possibly be in more than one position at one time, nor is it possible that a point should move so rapidly as always to remain in the same spot. I answer: Of course it is sheer nonsense; but I insist that *the whole nonsensical edifice rests upon the one nonsensical*

assumption that an endless series can be completed by a progress which results in the attainment of a final term. This is the assumption to which his peculiar views of the infinite divisibility of space and time force the Kantian. Grant this assumption and the rest follows of itself. The reasoning contains no other error. Its steps, briefly stated, are as follows: —

1. If finite spaces and times are infinitely divisible, a point moving uniformly over a finite line, *must* be able to pass through an endless series of positions and arrive at the very end.

2. The total space and time of the motion may be so divided as to be truly represented by the descending series, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$ . . . 0.

3. If it is possible for one such series to be completed, there is absolutely no reason for affirming that another series of exactly the same kind may not be.

4. Hence, if it is conceivable that a disk may complete one revolution upon its centre in half a second, the next in a quarter of a second, etc., there is no reason for affirming that it is theoretically impossible for it to attain such a rate of speed that the time of its revolution will be reduced to zero.

5. When it is thus reduced to zero, it is clear that there is no time whatever during which a point upon the circumference of the disk is away from the position in which it was at the beginning of the motion, etc.

I beg the reader to remark that there is absolutely no ground for discriminating against the disk in the mere fact that it is impossible to define intelligibly the last term in the series of its revolutions. It is important to grasp this clearly, for the superficial thinker is apt to delude himself with the reflection: We can, at least, know where the point that has exhausted the line is at the close of the second; but no man can make clear what the point on the disk is doing at the close of the second.

It is, however, easy to show that the final term is not a whit more difficult of definition in the one case than in the other, and that our partiality for the line is due to a mere blunder. In the one case we ask *where the point is*, a question which is answered, not by an appeal to our infinite series, but by a recourse to the tape measure; a question which may be answered perfectly well by the opponent of the Kantian, who repudiates the infinite divisibility of finite lines. In the other case we ask *what the nature*

of the final term is, a question which cannot but be highly embarrassing to the Kantian, in view of the fact that he cannot admit that there is a final term, and yet cannot get on without one. Let us in each case ask the same question. This is simple justice, for it is my whole contention that the behavior of the point on the disk is in no respect more reprehensible than that of the point on the line.

We will, then, inquire into the nature of the final term in each series; what is happening in the last fraction of the second in the one case and in the other? "My dear man," insists the Kantian, "there *is* no final term, and there *is* no last fraction of the second; space and time are *continuous*." To this I must answer: Has not the point passed over the whole line? Did it do it all at once, or bit by bit? No two bits, small or great, can be disposed of at once. And is not the second past? Did it pass as a unit, or bit by bit? Can two points in time be simultaneous? There was a beginning of the motion and an end; there was a beginning and an end of the second. Something *must* have come last. We will talk about that something.

Now, what is the point on the disk doing at the very close of the second? It cannot be describing a circle, in the usual sense of the words, for we are considering the last term in the series, the last fraction of the second. The last fraction cannot be composed of parts, or it would not be the last; there would be one half as big after it. To describe a circle a point must be in successive positions in successive instants, and here we have not successive instants. On the other hand, the point cannot be at rest, as the words are commonly understood. Is it not the law of the series that, with each succeeding term, the point will double the rapidity of its motion? Is there anything in the nature of space and time to warrant us in assuming that, at a given instant, doubling the rapidity of a point's motion will bring the point to rest?

But what is the other point doing in the same final fraction of the second? Is it moving? There is no time to move in, for this fraction has no parts. Is the point exhausting the final bit of line? Surely not that; it cannot be concerned with a bit of line, in any proper sense of the words, for every bit of line must, by hypothesis, be composed of parts, and so long as we have before us a something with parts we are not occupying ourselves with a final term; there is still room for a term half as big. Is our point, then, "exhausting" a mere point? We are told that a point cannot

in any way contribute to the length of a line; and, if this be so, our final term forms no part of the point's path — it does not add what was lacking. Besides, our final term must be half the size of the term preceding, and what sort of a bit of line is it that is made up of two mathematical points?

We cannot, therefore, admit the right of the Kantian to repudiate the timeless motion of that depressing disk on the mere ground that it is in its nature an absurdity. The Kantian accepts, as we have seen, many absurdities. The disk is in the last fraction of the second as sensibly occupied as is the point that moves along a line. In each case we are contemplating what is absurd and inconceivable, and there is not the toss of a copper between them.

The conclusions of these reasonings will doubtless seem to many persons highly unpalatable. There is, however, but one way to avoid them, and that is to repudiate the foundations upon which they rest. Perhaps I should amend this statement by saying there is only one *logical* way to avoid them. Practically, of course, we can avoid them by turning our minds from the whole subject, and this is what is commonly done. The unpleasant consequences of philosophic reasonings may be put to rout by an enemy who has not borrowed his arms from Aristotle or from his successors. "I dine," writes Hume,[1] "I play a game of backgammon, I converse, and am merry with my friends; and when, after three or four hours' amusement, I would return to these speculations, they appear so cold, and strained, and ridiculous, that I cannot find it in my heart to enter into them any further." In such a mood logical difficulties are not taken seriously, and the mind drifts upon the stream of its habitual associations.

It is worthy of remark that such moods are by no means exclusively the result of relaxation and conviviality. An attachment to the doctrines of this or of that school of thought, doctrines to which we have grown accustomed, and which seem to place at least some sort of ground under our feet; the agreeable sense that we belong to a party, and are not groping our way alone in the maze of speculations which confronts the philosopher; these things, and such as these, may disincline us to take seriously even the most serious of difficulties. We choose to jolt our way along upon the old road, even over an occasional self-contradiction. It seems better than to seek a smoother track, which is little fre-

[1] "Treatise of Human Nature," Book I, Part IV, § 7.

quented, and which may, for all we know, lead anywhere or nowhere. Accordingly, we take up an exposition of the inconsistencies which arise out of the Kantian doctrine, read it through, indulgently compliment the author upon his "acuteness," and, feeling unable to point out any actual flaw in his argument, we take our stand upon what may be called the platform of the liberal-conservative in philosophy, saying: "There are undoubtedly difficulties connected with the doctrine of the infinite divisibility of finite spaces, but the way to avoid these difficulties is not to repudiate what is undoubted truth, and to take refuge in a shallow empiricism," etc. Although the occasioning cause may be different, our attitude of mind is distinctly Humian.

Before closing this discussion of the Kantian doctrine of space, I must comment briefly upon one attempt to avoid the enormities we have been passing in review, which does not repudiate the doctrine of the infinite divisibility of finite spaces, and which yet does not simply avert its eyes from the painful consequences of the doctrine. This attempt consists in maintaining that we are not bound to hold that every finite space consists of an infinite number of finite spaces, for space is *infinitely divisible* not *infinitely divided*.

This quibble — for although it has a venerable history, it is nothing more — need not detain us very long. We have only to ask how it helps us in the case of the moving point. The line over which the point has moved is infinitely divisible. What does this mean? We call a line divisible, because we believe that it can be divided; and we believe that it can be divided (theoretically of course), because it is composed of parts. If we did not believe it to be composed of parts, we should not regard it as divisible. By saying that the line is infinitely divisible, we mean simply that it is composed, not of a limited, but of an unlimited number of parts; and by saying that the motion of a point over it is continuous, we mean that the point must take successively an infinite series of positions. Now our point has completed its progress; it is at the end of the line. Has it, or has it not, passed over every part of the line? Has it, or has it not, been successively in an endless series of positions? It is trivial to raise the question whether the parts of the line, the positions along it, have been counted or not. If the line is infinitely divisible, and if the point moves along it, it evidently comes to the end of an endless series at every step of its progress.

CHAPTER XII

THE BERKELEIAN DOCTRINE OF SPACE

It is clear from what was said in my last paper that the Kantian doctrine is a house divided against itself, and that, unless we elect to embrace the motto : *credo quia absurdum est* — a motto not now in fashion in most departments of human knowledge — we are under obligations either to modify it or to repudiate it altogether.

What shall we do? Shall we maintain that space is *not* infinitely divisible? If we have the temerity to do this, we shall find drawn up against us, not merely the philosophers, but with them a formidable array of those who, like Clifford, care not a doit for philosophers, but hold very definite notions regarding points, lines, surfaces, and solids, and express these opinions with much emphasis. The mathematician usually takes little interest in such distinctions as that between "intuition" and "conception"; but he insists strenuously that it is absurd to maintain that a surface may be so narrow that, when split longitudinally, it is divided into two lines; or a line so short that, when bisected, it yields only a brace of points. Mathematics, he affirms, can recognize no such lines or surfaces.

And in this the mathematician is entirely in the right. The space with which he is concerned *is* infinitely divisible; his solids do not split up into surfaces, his surfaces into lines, and his lines into points. But, then, he is not dealing with a space immediately given in intuition; he is dealing with *real* space. He has passed from sign to thing signified, without remarking the distinction between them, and though this distinction may not greatly concern him when he remains on his own ground, it is one of the utmost moment to the metaphysician. Indeed, it is just the failure to recognize it that has introduced into the Kantian doctrine the inconsistencies previously discussed. That doctrine is so near to the truth that it needs but a little modification to make it quite satisfactory. This I must try to make clear.

We have seen that Kant held that every object of intuition must consist of part out of part, whether we can prove it to be so constituted or not. "All intuitions," he maintains elsewhere in the "Critique,"[1] "are extensive quantities." "By an extensive quantity," he explains, "I mean one in which the representation of the parts makes possible the representation of the whole (and hence, necessarily antecedes this). I cannot represent to myself any line, however small, without drawing it in thought, *i.e.* from a point generating all its parts successively, and thus alone producing the intuition. So it is also in the case of every, even the smallest, portion of time. In it I represent to myself only the successive progress from moment to moment, and this, by the addition of all the bits of time (*Zeittheile*), finally begets a determinate quantity of time. Since the pure intuition in all phenomena is either of space or of time, every phenomenon, as intuition, is an extensive quantity, for it can only be cognized in apprehension through the addition of part to part. Hence all phenomena are intuited as aggregates, as consisting of a multiplicity of previously given parts. This is not the case with quantities of every description, but only with those that are represented and apprehended by us as in their nature extensive quantities."

The reader of the preceding chapter will find in this passage a good deal to object to. To represent to myself any line, however small, I must produce it bit by bit; I must successively add *all* its parts. How many of these parts are there? An endless number. And are these bits of line ready to hand, or must they be produced "from a point"? And what is meant by a "successive progress from moment to moment"? Are moments indivisible, or are they bits of time? Evidently the latter. They, in turn, then, are a problem, and must be obtained as the result of an endless addition of parts. The successive addition of portions of space and of time seems simple only when one forgets for the moment that one is a Kantian.

That is what Kant has done here; he makes space and time out of spaces and times, but he leaves us wholly in the dark as to how those bits of space and time that we are to piece together come into being. There is a leap from a point — and they somehow appear; the rest is simple. But we must not ask how we "drew" the first bit of line, or how we "begat" a moment. Moreover, if *all* phenomena

[1] "Critique of Pure Reason," Transcendental Logic, Axioms of Intuition.

are "cognized in apprehension through the addition of part to part," or "intuited as aggregates," how about the *minimum sensibile*, which is inferred to have parts, although we cannot perceive it to be composed of such? Do we "intuit" this as an aggregate, even while it seems to us to be simple?

But I must not dwell upon these inconsistencies, for they have been sufficiently discussed already. In the division of the "Critique" from which I have just been quoting, Kant again makes it evident that he is led to take the unfortunate position that he does take, by the supposed necessity of avoiding a clash with mathematical doctrine. "Empirical intuition," he writes, "is only made possible by pure intuition — that of space and time. Hence what geometry says of the latter will indisputably apply to the former. Such evasions as the statement that objects of sense do not conform to the rules of construction in space (to the principle of the infinite divisibility of lines and angles, for example) must fall to the ground. For such evasions deny to space, and with space to mathematics as a whole, objective validity; and one no longer knows why and to what extent the mathematics can be applied to phenomena."

Here we have the very nerve of the dispute. Are we to repudiate mathematical reasonings, or, what seems as bad, to deny their applicability to the things of which the senses give us information? Surely not. But are we, then, to accept the infinite divisibility of what is given in intuition, and must we, to avoid giving offence to the mathematician, shut our eyes and bolt the inevitable consequences of such an admission? It is pathetic to hear those who feel within them the pangs of the antinomial colic murmur with resignation: "There are, indeed, difficulties," etc.

It is a relief to find that we are not, in fact, shut up to these alternatives. Kant himself has recognized a distinction which, when its significance is clearly seen, enables us to avoid disaster in either direction. The passage in the "Critique," which I have in mind in saying this, is so interesting that I shall quote it at length:[1] —

"We are accustomed to distinguish in phenomena what belongs essentially to the intuition of them, and is valid for every human sense-faculty, from what belongs to them only accidentally, inasmuch as it is not valid in relation to the faculty of sense taken generally, but only in relation to a particular disposition or organization of this or that sense. Knowledge of the first sort gives us,

[1] "Critique of Pure Reason," General Remarks on Transcendental Æsthetic.

we say, the object as it is in itself; knowledge of the second gives us only the object as it appears. But this distinction is merely empirical. If we adhere to this position (as is commonly done), and do not regard the former empirical intuition (as one should) as, in its turn, mere phenomenon, in which nothing that belongs to the thing-in-itself is to be found, we lose our transcendental distinction, and we believe that we are cognizing things in themselves; whereas, on the contrary, everywhere in the world of sense, even in our profoundest investigations into the objects which belong to that world, we are dealing with nothing but phenomena.

"Thus we call the rainbow a mere appearance or phenomenon in a sunny shower, and we call the rain the thing-in-itself. This is right enough, if we take those words in a mere physical sense, and mean by the thing-in-itself that which, in universal experience, and in all its various relations to the senses, is constituted in intuition in just this way and in no other. But if we take this empirical experience generally, and, without inquiring into its harmony with the faculty of sense of every human being, ask whether this represents an object in itself (not the raindrops, for they, as phenomena, are evidently empirical objects) — if we do this, we find that the question of the relation of the representative to its object is a transcendental one, and that not only are the drops mere phenomena, but even their globular form, nay, the very space through which they fall, all are nothing in themselves, but are mere modifications or fundamental dispositions of our sensuous intuition. The transcendental object remains unknown to us."

This "transcendental object" is, of course, the "external reality" which has so often been assumed to exist beyond consciousness, and with which I am not concerned in these chapters. In this passage of the "Critique," as in many others, Kant comes near to repudiating it altogether. He sees that the distinction we all draw between appearance and reality does not necessitate any reference to such a thing as this, but is a distinction within our experience, and has to do only with phenomena, in the broad sense of that word. One experience (the rainbow) is taken as the sign of another (the falling drops); the sign is recognized as appearance, while the thing signified takes on the dignity of the reality. This is quite in harmony with the doctrine coming to be accepted, I think, by an increasing number of philosophers, namely, that when we are contrasting in our experience appearance and reality,

the reality always means to us that upon which we lay the duty of ordering and explaining our experiences as a whole.

Unhappily, Kant did not see the full significance of this distinction. He might, after showing in what sense the rainbow is not the reality, but only the sign of it, have gone on to show that each raindrop, as visual-appearance, is sign of a reality known to us in terms of touch and motion. Having arrived at this point, he might have indicated that this reality, in its turn, is relatively and not absolutely real; *i.e.* that what is actually given in sense or imagination (the intuition) may in its turn become sign or appearance of something else, which thus becomes, relatively to it, the reality. As it is, he assumes that there is given in intuition a last "appearance," which is the reality, not in a relative, but in an absolute and final sense, and to which the "rules of construction in space" directly apply in all their rigor. He fails to see that here, as before, he is dealing with a symbol, and out of his confusion of symbol and thing symbolized spring the difficulties exhibited above.

The doctrine which I have called the Berkeleian avoids these difficulties, without, I think, giving up anything that the Kantian need care to retain. It merely distinguishes more carefully between symbol and thing symbolized, and refuses to be led into needless perplexities by the assumption of "necessary forms" of intuition and supposed inferences from them. Its argument may be set forth briefly as follows: —

1. In a given experience of which I am intuitively conscious — say, an expanse of color-sensation — I can distinguish between "matter" and "form," between the stuff of my experience and its arrangement.

2. I perceive the expanse of color to be composite, and to be divisible into parts, but I do not perceive it to be composed of an infinite number of parts, *i.e.* to be infinitely divisible; so much Kant has himself admitted.

3. It is important to bear in mind, however, that no such single experience constitutes what we mean by a "real thing," nor is its "form" what we mean by "real space." We have here only the raw materials out of which real things and real space are built up. Our experiences fall together into an orderly system, and single experiences serve as signs of other experiences or of whole groups of such. Thus the little patch of color-sensation that represents a tree seen at a distance, and the larger patch that represents a tree

seen near at hand, are recognized as belonging to the same group, and are regarded as different experiences of the *same thing*, *i.e.* the one can stand for the other, and each serves as a sign of the "tactual" tree in which the mind rests as the real thing of which each is an appearance.

4. But a little reflection makes it apparent that it is a mistake to suppose that this real thing, of which the whole series of visual appearances are signs, is a single intuitive experience of any sort. The tactual thing, as it exists in the sense or the imagination, is the temporary resting-place of our thought, not its permanent goal. Science conceives the tree to be made up of atoms and molecules, imperceptible to the sense, and yet really existing and furnishing an explanation of what is given in the sense. Of this "reality" the tree over which I pass my hand becomes an "appearance." And if we are justified in thus passing from what is given in the senses, to what science compels us to accept as furnishing its explanation, a path is opened up to us to which we cannot arbitrarily set a limit. The real thing, in any but a relative sense, becomes to us a possibility of substitutions according to a definite principle; it is not a single intuitive experience of any sort whatever.

5. If we will hold this clearly in mind, we may avoid antinomial pitfalls without either tilting against mathematics, or shocking the common sense of mankind by denying that space, and lines and angles in space, are infinitely divisible. Berkeley pointed out long ago that we cannot continue to subdivide a given finite line (the line, that is, as given in a single intuition) indefinitely. We soon come to what appears to the sense to be a mere point, and to have no part out of part. He rightly indicated that when we talk of subdividing that which seems to the eye a mere point we are in imagination substituting for that a line, which is, of course, composed of parts, and we are continuing our subdivision upon this substitute.

When we realize that this system of substitutions is typical of our whole experience of the real world, which reveals itself in consciousness as a system of interrelated experiences, we can understand why the infinite divisibility of extended things should be so earnestly insisted upon. The point which appears to result from the subdivision of a line can be approached to the eye, and it is seen as a short line. When a further subdivision has taken place, and no change of position will reveal it as a line, we can place a microscope over it.

In all this we conceive ourselves to be dealing with the *same* thing, and so we are, in a very important sense of the word *same*. But it is a very unfortunate error to suppose that any one of the experiences which represents to us the real thing is the same with any other in a quite different sense of the word — to suppose, namely, that they are strictly identical. Unless we happen to be psychologists, we are not concerned with any one of the experiences in itself considered. We are concerned with the real thing, of which any single experience is a mere symbol. It is quite possible for the psychologist to maintain that any single experience is probably ultimately divisible into a limited number of sensational elements not themselves further divisible; and yet to maintain stoutly that the real thing is to be conceived as infinitely divisible. He has only to distinguish carefully symbol from thing symbolized.

6. Thus we see that, although the geometer finds his raw materials in intuition, he uses these raw materials only as his point of departure. If lines and angles were not given in intuition, and if we could not subdivide these in individual experiences, the geometrical refinements which have grown out of such experiences would be impossible. But these refinements have, be it remembered, *grown out of* the experiences; they are not identical with the experiences themselves.

For example, a fine line upon the paper before my eye *seems* to me to have length, but no breadth. I can divide it in such a way that the two resulting portions *seem* to me to be exactly equal to each other. I can form an angle out of two such lines, and can draw a third line in such a way that it *seems* to bisect the angle exactly. But the mathematician informs me that no line can be drawn, by any instrument, which has not breadth as well as length; and that the chances are infinitely against the exact equality of the parts of the divided line and of the divided angle. "The line may seem to you without breadth," he explains, "and the line and the angle may seem exactly bisected; but this is mere seeming. If your senses were more discriminating, you would discover your mistake."

This simply means that, in the series of substitutions we have been considering, the line will not remain a line, but will turn into a surface, and the halves will no longer remain halves, but will be seen to be unequal. The geometer gets his first crude notion of a line and of bisection in just such intuitive experiences as I have

mentioned. But he does not rest in the intuition; he turns it into a *conception*. The geometrical line he conceives as one which, under all circumstances, is to remain a line; the geometrical point must not, when narrowly inspected, spread out into a spot; the bisected angle must remain bisected. That lines which appear to be true lines are seen on closer inspection to be narrow surfaces, and that visible points turn into small bits of territory, is matter of constant experience. The geometrical line and point must not do this under any circumstances whatever. They are abstractions, not concrete things.

7. From the above it seems to be clear that real space is neither a hopeless mystery nor the mother of unavoidable self-contradictions. *Real* space is the "form" of the real thing, and just as the real thing (in any but a relative sense of the word) is not given in any intuition, so real space (in any but a relative sense) is not given in any intuition.

When, in any given instance, I pass in thought from appearance to reality — for example, when I pass from the visual appearance to the tactual thing of which it is the sign — I may regard the "form" of the latter as more real than that of the former. It is that in which the mind rests for the time being. But, as we have seen, any such thing may, in its turn, become appearance in relation to a reality more ultimate; and we recognize that, however far we may carry our investigations, there is no reason to believe that we shall meet with an absolute limit. Every reality in which we may rest at any time is, thus, a relative reality, and its space is relatively real. The absolute object and its absolute space are not *an* object (intuitive) and *a* space (the "form" of an intuition), but rather *an indefinite series of substitutions* gathered up and hypostatized into an individual. It is to this absolute object and its absolute space that the mathematical conceptions apply in all their rigor. They apply to these without self-contradiction, because we are here not dealing with an individual experience at all.

And it should be noted that, just as we do not think of the several appearances as so many different objects, but call them manifold appearances of the one object; so we do not regard the "form" of each appearance, the space it occupies, as a distinct and separate space.

When we walk toward the tree which we see at a distance, we recognize that we are conscious of a succession of appearances, and

a little attention to them reveals the fact that they differ from each other both in "matter" and in "form"; in other words, the patch of color of which we are conscious undergoes both qualitative and quantitative changes. Yet we maintain that we have been looking all along at the one tree, and we regard that one tree as occupying one real space, which does not grow larger, but remains always the same. This means that both "matter" and "form" in the successive appearances have been reduced to the rank of mere signs of a something beyond them.

So much for the Berkeleian doctrine. As it makes any particular finite line in consciousness to consist of a limited number of simple parts, it is not open to the objection that it makes motion along such a line a wholly inconceivable thing. It does not force upon a moving point the absurd task of exhausting an endless series. The descending series discussed in the last paper results after a limited number of terms in the simple, and there the series is broken, for the simple does not consist of parts. In all this there is, at least, no contradiction. In an earlier work I have discussed the objections commonly brought against it, and at the risk of a little repetition I shall quote what I have there said:[1]—

"It may be argued, first, as it often is argued, that it is impossible to conceive of any part of a line as not itself extended and having parts. It may be admitted that the small parts arrived at do not *seem* to have part out of part, that these sub-parts are not observed in them; but still it is said that one who thinks about them cannot but think of them as really having such parts. I ask one who puts forward this objection to look into his own mind and see whether he does not mean by "thinking about them," bringing them in imagination nearer to the eye, or by some means substituting for them what can be seen to have part out of part. That one can do this no one would think of denying, but this does not prove the original parts to be extended.

"It may be objected, again, that extension can never be built up out of the non-extended — that if one element of a given kind has, taken alone, no extension at all, two or more such elements together cannot have any extension either. I answer that a straight line has no angularity at all, and yet two straight lines may obviously make an angle; that one man is not in the least a crowd, but that one hundred men may be; that no single tree

[1] "On Sameness and Identity," pp. 150–152.

is a forest, but that many trees together do make a forest; that a uniform expanse of color is in no sense a variegated surface, but that several such together do make a variegated surface. It may be that extension is simply the name we give to several simple sense-elements of a particular kind taken together. One cannot say offhand that it is not.

"Should one object, finally, that, if a given line in consciousness be composed of a limited number of indivisible elements of sensation, consciousness ought to distinguish these single elements and testify as to their number; I answer that what is in consciousness is not necessarily in a clear analytical consciousness, nor well distinguished from other elements. For example, I am at present conscious of a stream of sensations which I connect with the hand that holds my pen. The single elements in this complex I cannot distinguish from each other, nor can I give their number. It does not follow that I am to assume the number to be infinite. Much less should I be impelled to make this assumption, if it necessitated my accepting as true what I see to be flatly self-contradictory, as in the case under discussion. It was because of this vagueness and lack of discrimination in the testimony of consciousness that I said, some distance back, that consciousness *seems* to testify that any finite line in it is composed of simple parts. If the testimony were quite clear, the matter would be settled at once. As it is not quite clear, the matter has to be settled on a deductive basis. The most reasonable solution appears to be the Berkeleian."

Surely the Berkeleian doctrine is preferable to the Kantian, and should replace it. But it is desirable not to overlook the fact that the latter doctrine emphasizes a very important truth — it insists strenuously upon the validity of the application of mathematical reasonings to phenomena. In this it is wholly in the right, for here it is recognizing the system of relations which obtains within our experience as a whole. Its only error — that is, its only fundamental error — lies in supposing that in dealing with any single intuition it is dealing with "real" space and "real" things. If the Berkeleian will admit that "real" space is infinitely divisible (as it may be), and if the Kantian will admit that "real" space is not given in any intuition (as it certainly is not), there need be no quarrel between them.

We shall now turn our attention to the problem of the nature of time.

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CHAPTER XIII

OF TIME

THE seeming self-contradictions which have so often raised their menacing heads in the pathway of the philosopher who has had the temerity to discuss the nature of space, are reinforced by an ally of peculiarly truculent aspect, when it is a question, not of space, but of time. When we occupy ourselves with the infinity and infinite divisibility of time, we meet the same problems that confront us when we consider the infinity and infinite divisibility of space. But when we think of time as consisting of parts which are not simultaneous but successive, as made up of past, present, and future, the very ground on which we stand seems to sink beneath us and to leave us suspended in the void. We are discussing time, as though we meant something by the word; and yet, has the word really a meaning? Can there be such a thing as a consciousness of time? The problem is not a new one. It has been stated with such admirable lucidity by Augustine, that I cannot do better than to refer to certain passages in the "Confessions":

"What, then, is time? If no one asks me, I know; if I try to explain it to one who asks, I do not know; yet I say with confidence that I know. But if nothing passed away, there would be no past time; if nothing were to come, there would be no future time; if nothing were, there would be no present time. Yet those two times, past and future, how can they be, when the past is not now, and the future is not yet? As for the present, if it were always present, and did not pass over into the past, it would not be time but eternity."[1]

Yet, says Augustine, we talk of a long time and a short time, though only in dealing with time past or future. But how can that which *is not* be long or short? We cannot, then, say of the past or the future, *is* long; but we must say of the one, *was* long, and of the other *will be* long. While present, the past had exist-

[1] Book XI, Chapters 14 and 15.

ence, and so might have been long. But no! the past did not then exist; it was the present alone that existed. The present is the only existent, and, hence, if anything can be long, it must be the present.

We are, then, absolutely shut up to present time. Can this be long? We speak of the present century, year, month, or day, but evidently in a loose sense of the word "present."

"Even a single hour passes in fleeting moments; as much of it as has taken flight is past, what remains is future. If we can comprehend any time that is divisible into no parts at all, or perhaps into the minutest parts of moments, this alone let us call present; yet this speeds so hurriedly from the future to the past that it does not endure even for a little space. If it has duration, it is divided into a past and a future; but the present has no duration.

"Where, then, is the time that we may call long? Is it future? We do not say of the future: it *is* long; for as yet there exists nothing to be long. We say: it *will be* long. But when? If while yet future, it will not be long, for nothing will yet exist to be long. And if it will be long, when, from a future as yet non-existent, it has become a present, and has begun to be, that it may be something that is long; then present time cries out in the words of the preceding paragraph that it cannot be long."

So much for the unreasonable nature of time as consisting of past, present, and future. The pass really seems to be rather a bad one. Past time is not now, future time is not yet, and present time has no duration. We are reduced to a limiting point between two non-existents, and all our apparatus of years, months, days, hours — the quart-pots and pint-pots which we have prepared to measure our commodity — must, it appears, remain empty for lack of something to fill them.

From the persecutions of such metaphysical reflections there remains, of course, the refuge of common-sense fact: "Yet, Lord, we do perceive periods of time, and compare them with one another, and call some longer, others shorter."[1] "What then, is time? if no one asks me, I know; if I try to explain it to one who asks, I do not know; yet, I say with confidence that I know." The position is well taken, but it is clear that, when

[1] *Op. cit.*, Chapter 16.

one rests in this, the flight is from bad metaphysics to no metaphysics at all, from an unlucky attempt at analysis to a contented acceptance of unanalyzed experience. It is thus that the plain man rejects with disgust attempted proofs of the non-existence of an external world, or turns a deaf ear to the plausibilities of the solipsist. He does not see what is wrong, but he feels blindly that something must be wrong, and he elects to follow his instinctive feeling.

A reflective man cannot, however, contentedly abandon all metaphysical analysis. It is not enough to feel sure that we are somehow conscious of time as past, present, and future, notwithstanding the fact that the past and future are not, and the present is the only real existent. The question inevitably arises: What does all this mean? and the question presses insistently for an answer. An answer that is either too vague to convey any definite meaning, or too inconsistent to command the respect of the logician, is no answer at all. It should be rejected in the interests of a new investigation, whatever the array of authorities that may be drawn up behind it.

Augustine is too much of a philosopher to be content with a mere appeal to common sense. He tries seriously to meet the difficulty that stares him in the face. But the solution which he offers us consists in simply transferring the problem from the field of metaphysics to that of psychology. In the mind we find expectation, apprehension of the present, and memory. It is memory and expectation that we measure, and not time. Future time is not long, for it as yet is not; but a "long future" is "a long expectation of the future." Nor is past time long, for it is not; but a long past is "a long memory of the past."

For example, Augustine is about to repeat a Psalm that he knows. Before he begins, his expectation extends over the whole. A little later, a portion of the Psalm is "extended along" his memory. Finally, all the expectation is exhausted, and memory covers the complete field. Through the apprehension of the present, expectation passes over into memory, and memory and expectation can be measured, for they are not non-existent as are past and future. Thus we do not, strictly speaking, measure time, but we do measure memory and expectation, so that what we call measures of time are not without their significance.[1]

[1] *Op. cit.*, Chapters 27, 28.

This strikes one as rather ingenious, but it is not difficult to see that the problem is made no whit easier of solution by being transplanted to a new field. Expectation gives place to memory, as the future runs over into the past — the one diminishes, the other grows. But can changes take place in an indivisible instant? Are not at least two instants essential to change of any sort? Can the two instants exist simultaneously? If not, then, while the one is, the other is not; and we can at no time be conscious of succession or change, for we can only be conscious of what is existent. We may have, then, at a given instant, what I may call a "variegated" consciousness, but it can hardly be a consciousness of past, present, and future, for past and future do not mean to us merely such and such elements in the consciousness of the present moment. The past means that which *has been present.* But when? At the present moment? No, at some past moment. But what is a past moment? Can we be conscious of it in the present, the only existent? It is clear that Augustine seems to himself to have solved his problem merely because he has carried it into a somewhat obscure region in which it no longer stands out as a problem. He unconsciously gathers up the past into memory, and the future into expectation, and makes both in a sense present, without letting them lose quite all their significance as past and future. Obscurity is a great reconciler of contradictions, and Augustine, like many another philosopher, believes that he has seen most clearly where the field of vision has been most faintly illuminated.

Thus Augustine has left the problem as he found it. How can we be conscious of time as past, present, and future? Can we be conscious of what does not exist? Can the consciousness of a punctual present be called a consciousness of time? Surely the problem cries out for an answer.

That a satisfactory answer can be found, and that we are not forced to accept as insoluble any of the antinomies that have been supposed to arise out of the nature of time, I think is reasonably clear. In treating of time I shall not be forced to enter so fully into detail as I should, had I not already discussed the nature of space. I shall first briefly criticise the Kantian doctrine; I shall then give in outline the opposing doctrine, which I have called the Berkeleian; finally, I shall try to answer the objections which may be urged against the latter, discussing, among other

things, the problem upon which I have dwelt in the pages preceding.

The Kantian doctrine of time as a "necessary form" of intuition is open to the same objections as the Kantian doctrine of space.

It is palpably absurd to say that infinite time is given in an original intuition,[1] and it is only by playing upon the ambiguity of that word that the statement can be given the least plausibility. We are no more intuitively conscious of infinite time than we are of infinite space. The pretended proof that the assumption of the infinity of time is a necessity of thought, is the identical quibble which is used to prove space necessarily infinite; we cannot, it is said, conceive a time before which there was no time.[2] This means, of course, that we cannot conceive a time *in the time before which there was no time*. Manifestly we cannot, just as we cannot conceive a number the number before which was not a number; but it is foolish to attempt a foolish task, and foolish to find a profound significance in the failure to accomplish it. And the argument that the world must have existed through infinite past time because void time is not enough of a thing to limit the world's existence, is the creation of information out of nothing already criticised in the case of space.

When we turn from the consideration of time as infinitely extended to that of time as infinitely divisible, we do not find the Kantian doctrine more satisfactory. The difficulties met with in discussing the doctrine of space, all present themselves once more. Are we *directly conscious* of time as infinitely divisible? Does a period of ten seconds *seem* to us to be composed of an endless number of lesser divisions of time? Do we *perceive* the succession of these constituent parts of the whole? And if not, what does it *mean* to say that the infinite divisibility of time is matter of intuition? Surely the word covers some ambiguity.

Furthermore, if time is infinitely divisible in such a sense that those ten seconds, of which I am conscious as they pass, are infinitely divisible into lesser divisions of time, how is it conceivable that any division of time whatever should come to an end?

[1] "Critique of Pure Reason," Transcendental Æsthetic; Metaphysical Exposition of the Conception of Time.

[2] Hamilton, "Metaph.," XXXVIII; Spencer, "First Principles," Chapter III.

We have seen that Kant passes very lightly over this difficulty: "I cannot represent to myself any line, however small, without drawing it in thought, *i.e.* from a point generating all its parts successively, and thus alone producing the intuition. So it is also in the case of every, even the smallest, portion of time. In it I represent to myself only the successive progress from moment to moment, and this, by the addition of all the bits of time, finally begets a determinate quantity of time." That maddening "successive progress from moment to moment"! How is it accomplished? It seems so easy; and yet, to the Kantian, it is so hopelessly impossible. Has a moment parts? Yes, it is a "bit of time" (*Zeittheil*), and must not only contain parts, but even an infinite number of parts — "all phenomena are intuited as aggregates, as consisting of a multiplicity of previously given parts" — so that we cannot conceive any fraction of a moment which is not as much of a problem as the moment itself, or, for that matter, as a year or a century. How, then, does time pass? By the successive addition of moments? As well say, by the successive addition of centuries. In giving such an answer one has said nothing at all. No self-respecting Kantian *can* represent to himself "the successive progress from moment to moment," for the Kantian moment, which can only be completed by the successive addition of an endless number of parts, will never come to an end. "But," says the Kantian, "it *does* come to an end, and there is a successive progress from moment to moment." This can only mean that no moment is a Kantian moment. The inference is unavoidable.

I have said that, in writing the above description of our method of begetting a determinate quantity of time, Kant evidently forgot for the moment that he was a Kantian.[1] That he was capable of this lapse is made very clear by another passage in the "Critique." He writes: "If we leave out of consideration the succession of many sensations, apprehension through mere sensation fills but one moment. As something in the phenomenon the apprehension of which is not a successive synthesis proceeding from parts to the whole presentation, it has, hence, no extensive magnitude; thus the absence of sensation in this moment would present it as empty, and, therefore, as = 0."[2]

[1] See the preceding chapter.

[2] "Critique of Pure Reason," Anticipations of Perception.

The moment of which Kant is speaking I am tempted to call a Berkeleian moment. It has no parts; it is not extended: yet it is not a mere nonentity, notwithstanding the fact that, deprived of its "filling," it is equated with zero. It is given in intuition; it is a unit, not an aggregate; and it may be "filled." This differentiates it from the mathematical point, which is conceived to be the limit of two spaces, and itself incapable of receiving any "filling" whatever. A moment filled with sensation is not the theoretical limit of two times — a mere mathematical point in the line which represents time. It is an element in our intuitive experience of duration; and is the ultimate element. Given such elements in intuition, and the addition of them is not an inconceivable thing. But, then, there is no room for such in the Kantian philosophy. Our philosopher has lapsed into a truth which strict consistency would have denied him.

Thus the Kantian doctrine of a time given in intuition as infinite in extent and infinitely divisible is plainly untenable. It cannot be set forth in clear and simple language, stripped of verbal ambiguities, without revealing this fact. Since the doctrine runs out into palpable self-contradictions, we may be sure that no opposing doctrine can be more unsatisfactory. Hence, if we are wise, we will abandon the Kantian position without reluctance; setting out upon our voyage of discovery, not as unwilling exiles, facing the unknown with foreboding, but as cheerful emigrants, full of confidence that the extremest rigors of the possible future cannot exceed the hardships experienced in the past. For, indeed, than the Kantian doctrine, taken as it stands, it is quite evident that nothing can be worse. Can anything be more contrary to experienced fact than the statement that infinite space and infinite time are immediately given in intuition? Are a round square, a triangular parallelogram, dry moisture or wooden iron, more repellent to the intelligence than an endless series that ends? than the moving point on the Kantian line? than the flight of Kantian moments?

But here, as in the case of space, it is well to remember that the error in the Kantian doctrine can readily be eliminated by emphasizing an obvious distinction — the distinction between the crude intuition of duration given in a single experience, and the conceptual time which is built up out of such materials. The distinction is that between *appearance* and *reality*, and it is quite as

important to lay stress upon it when treating of time, as it is when treating of space. If the Kantian will but bear in mind that the time which he may consider as infinitely divisible — the time of the movement of the mathematical point over the mathematical line — is "real" time, and something quite different from the duration experienced in any intuition, he may lay the utmost emphasis upon the validity of the application of mathematics to phenomena, without involving himself in inconsistencies.

The doctrine which I shall take the liberty of calling the Berkeleian does take cognizance of this distinction, and avoids the pitfalls into which those who fail to recognize it are precipitated. It does not require us to believe any such startling statement as that we are immediately conscious of infinite space and infinite time, when we know very well that even the distance to the neighboring town, and the past three years of our lives, can be represented in our consciousness only by means of the symbol, a skeleton representative never to be confounded with that for which it stands. It does not try to persuade us that the ten seconds during which we are listening to the tick of the clock are given in intuition as composed of an infinite number of lesser bits of time, and that these come to an end notwithstanding the fact that they are endless. It recognizes the distinction between appearance and reality; and emphasizes the truth that our experiences fall into a system, that any single experience gains its significance from its place in that system, and that, when we speak of the "real" in any but a relative sense, we are not resting in a single intuition as such, but are thinking of something more. The doctrine may be set forth as follows:—

1. As there is a crude experience of extension which is not to be confounded with "real" space, but furnishes its "raw material," so there is a crude intuition of duration which is the foundation of our notion of "real" time. We may, if we please, call this a "form" of our intuition; it is an element in our experience.

2. We are, thus, intuitively conscious of time past, present, and future.

3. The time of which we are thus intuitively conscious is not infinite. We mean something, it is true, when we speak of infinite time, just as we mean something when we speak of an infinite universe; but in neither case are we intuitively conscious of the infinity of that whereof we speak.

4. Nor is the time given in a single intuition composed of an infinite number of bits of time. We are not directly conscious of these subdivisions, and it is not reasonable to infer their existence. It is as absurd to assume it as it is to assume that a particular finite line, given in a single intuitive experience, is composed of an endless number of bits of line.

5. But it is of the utmost importance to remember that no such single experience of duration constitutes what we mean by "real" time. "Real" time, the time with which science deals, is the time occupied by the changes in "real" things, and it is, of course, as remote from our immediate intuitive experience as are the "real" things themselves. Even in common life, although we never think of raising the question of what is contained in pure intuition and what is only symbolically known, we distinguish between "real" time and apparent; and we say that half an hour spent in listening to a prosy sermon *seems* long, just as we say that the moon seen at the horizon *seems* large. The "real" size of the moon, and the "real" half-hour are standards arrived at only after the comparison with each other of a vast number of individual experiences, and an observation of the relations to each other into which these fall.

It is this "real" time, the time occupied by the change in "real" things, that we may conceive as infinitely divisible. Just as the space occupied by an atom is something for science, although it lies far beyond the limits of the most discriminating sense-perception, so the time occupied by the vibration of an atom may be something for science, a something to be expressed by figures, a duration that may be halved or doubled, that may stand in all sorts of exact relations to the durations of which consciousness takes cognizance, yet it is not a something of which we may be directly conscious as duration. In the complex of experiences which is for us the real world, the symbol which stands for such periods of time is not without its significance. Indeed, the real world in time would be a thing very imperfectly ordered and explained, were processes in it not assumed to be divisible after this fashion.

There is a close parallel between our cognition of spaces and of times. "Real" space and "real" time are something quite distinct from the crude extension and duration given in intuition. One may perfectly well hold them to be infinitely divisible, and

yet maintain that the recognition of part out of part in any intuition can proceed only up to a given point, whether we are concerned with spatial or with temporal extension. It is only necessary to remember that the particular intuition with which one may be dealing is not, in itself, infinitely divisible, but that this experience may be made to stand as representative of a multitude of others. The moment given in intuition, the moment of which Kant has spoken as "filled" with sensation, may thus be converted into the "real" moment, which must never turn out to be a "real" time, however short, but must remain an ideal limit between two times. This has its parallel in the mathematical point.

To the above doctrine touching the nature of "crude" and "real" time, there may be raised several objections: —

1. It may be argued that it is impossible to conceive of a part of time that is not itself time, *i.e.* a something composed of parts. It may be admitted that, when we see a flash of lightning, we are conscious only of a blinding streak upon a background of leaden sky, and we are not conscious of the "generation" of the parts of this wonder "from a point." As the direction of the bolt remains problematic, and it is impossible to distinguish between beginning and end, it is clear that the production of the path cannot be perceived to occupy time. Still, it may be insisted, whether the phenomenon *seem* to occupy time or not, one cannot think of it as not occupying time. It will be seen that this objection has already been answered in discussing space. *Thinking* about the experience means nothing more nor less than passing from appearance to reality, from the intuition to that for which it stands. Of course, one must think of the "real" time represented by an intuited moment as extended and divisible, but that has nothing to do with the point in dispute.

2. It may be argued, again, that one can never manufacture time by simply putting together elements each of which has no duration at all — by the addition of the mere moments that Kant inconsistently recognized. This objection, too, has virtually been answered. I may remark, in passing, that is not an objection over which it is prudent for the Kantian to linger. For if a moment itself has duration, he cannot compass, as we have seen, his "successive progress from moment to moment"; and if it has no duration, he cannot by such progress hope to "beget" time. In either case he is reduced to "marking time" on the same spot. But the

fact is, that it is pure dogmatism to assert that moments without parts cannot, when added together, constitute time. The impulse to this error — a very natural one — lies in confusing moments given in intuition with the "real" moments which we conceive as mere limits to periods of time, and which have their parallel, not in the *minimum sensibile*, but in the mathematical point.

3. In the third place, one may object that, if the duration of which we are conscious in a single intuition be not infinitely divisible, but divisible only into a finite number of ultimate elements, consciousness ought to be able to distinguish these elements and give some account of their number. This third objection may be answered as I have answered the similar objection brought against the Berkeleian doctrine of space. What is in consciousness is not necessarily in a clear analytical consciousness, nor well distinguished from other mental elements. Were it possible, with the aid of direct introspection, to describe offhand all that is to be found in consciousness, the psychologist and the epistemologist would have an easy task. When we bear in mind, moreover, that our crude intuitive experiences of duration hold much the same relation to "real" time that our visual signs of distance and magnitude hold to "real" space, we need not find it surprising that our immediate intuition of duration is rather a thing to be guessed at than a thing revealed to clear vision. Time *intuited* is a *sign* of time *thought*, and the mind does not rest in signs, but hurries on to something beyond.

4. Finally we come to a more serious objection. How can time — even "crude" time — be given in intuition, when time is composed of moments no one of which can alone constitute time, and no two of which can exist simultaneously? This is the difficulty so acutely urged by Augustine. The past is not now; the future is not yet; the present is a mere point, and not enough, in itself, to constitute time. How can we, then, be conscious of time at all? Can we be conscious of what is not now, or of what is not yet? The single present moment which sums up our actual consciousness can give us no inkling of duration. If we admit that the past *exists*, it is not yet *past*, and if we maintain that it *does not exist*, it surely, as non-existent, is *incapable of being given with the present moment* in a single intuition. How can there be, under the circumstances, even the crudest intuition of duration?

It is safe to assume that there must be some way of escape

from this difficulty, for we surely mean something by past and future. We are conscious of duration in time as certainly as we are conscious of extension in space. The question before us is only one of analysis, and though our attempts at analysis may seem to lead us into strange paths, we need not despair of the ultimate solution of the problem. We have seen that other antinomies have arisen, not out of the very nature of things, but out of the infirmities of philosophers, and it is reasonable to believe that such must be the case here also.

Two things appear indubitable: first, that we really mean something when we speak of periods of time; and second, that we could not represent these even symbolically, were not something given in intuition that could furnish a content for our symbol. Something we must have to start with, or the symbol is a word in an unknown tongue; it *means* nothing. A short line may represent a long one, for both have extension; but a mathematical point cannot represent a line as extended. Even so, if no duration is given in any intuition, what is in mind when we say a month, a year, a century, cannot be *duration*. It would be quite impossible to represent symbolically the changes in a "real" world were there no immediate consciousness of change.

The psychologists have described with some minuteness the rise in a consciousness of the notion of time. A sensation is present; it fades gradually into a faint image of itself: an idea is present; it develops the life and vigor of a sensation. In such experiences we have the discrimination of memory and expectation from actual sensation, and from such beginnings grows the consciousness of a world of things in time. With the analysis of the psychologists we can have no quarrel; but it is of much importance to emphasize the truth pointed out earlier in this paper, namely, that no instantaneous photograph of a consciousness, whatever the elements it may contain, can yield the intuition of duration. This cannot consist in the mere presence in consciousness at any given instant of sensation and ideas. The past is not merely a mass of consciousness-elements fainter than sensations; it is *what has been sensation*. Consciousness of the past as past implies consciousness of change, and consciousness of change cannot be given in an indivisible instant. The *span* of consciousness, if I may so speak, must include more than an instant, or there can be no consciousness of time.

But how can the span of consciousness be thus extended? Is it possible for a past and a future, however brief, which are, nevertheless, past and future, and hence *do not exist*, to form part of one intuition with present sensation? Can the non-existent be given in intuition?

What seems the most natural answer to this question is the ancient one. Past and future do not exist, but they are present through their representative — the *thought* of them is present. It is plain from what has been said above, that this answer cannot be regarded as satisfactory. Nothing can truly symbolize change but change, nothing duration but duration. There can be no thought of time to a creature to whom no intuition of time is possible. If a consciousness embraces only the present, not the conventional present of common discourse — this day, this week, this year — but the timeless present of a moment, it can contain no possible complex of elements that can truly be called the thought of the past or the future. A consciousness that is to think time must embrace time, must cover more than a single instant. And the question thrusts itself upon one: Must not a state of consciousness, in order to do this, be an absurd compound of existent and non-existent elements? This sounds like nonsense.

With all due respect to some famous thinkers who have attacked the problem before, I venture to maintain that it is not insoluble, and at the same time, that its solution does not necessitate a recourse to those mystical speculations that solve one problem by sinking it in another. The difficulty is, I think, of our own making. When we say: How can you be conscious of the past and future which do not exist? Can one be conscious of the non-existent? what we really mean is: How can you, at the present instant, be conscious of the past and future, which, at this present instant, do not exist? Can one, at this moment, be conscious of what does not exist at this moment? To the question, as thus stated, there can evidently be but one answer. The past can certainly not be given in the present moment, or it would not be past. The present moment can contain only the present. But it should be observed that the question simply assumes that consciousness is limited to a single instant, and that the present one. If this position be denied, its force is quite lost. I can be conscious of a past and future, which do not *now* exist, if the span of my consciousness covers more than a "now." The past and the future

are non-existent, *from the point of view of the present;* but then the present must be regarded as non-existent *from the point of view of past or future.* To speak of the intuitive consciousness of duration as "a compound of existent and non-existent elements" is unreasonable, because the words suggest that the whole consciousness ought to be *now* existent — which is impossible, if it is to be consciousness of duration — and lead to the conclusion that, since it cannot all be now existent, it must be a compound of something and nothing, an absurdity over which you may weep or make merry according to your humor.

It will be observed that in the foregoing I have had no recourse to the *deus ex machina* of a timeless self, timelessly present at all times, and collecting the fleeting moments upon the impalpable thread of its own "immovable activity." How can I, asked Augustine, be conscious of a past that does not exist? Can I be conscious of the non-existent? The difficulty that presented itself to his mind lay in the fact that the very notion of the consciousness of duration seemed to be self-contradictory. As we have seen, there is a hidden pitfall in his question, and when this is discovered, it can be avoided. It is only necessary to take one's stand upon the fact that we really are conscious of duration, and to keep clearly in view what this implies. When we do this we find that there is no absurdity in the notion of a consciousness of duration. The apparent contradiction has arisen from the fact that such a consciousness has been affirmed and denied in one breath.

It is, thus, a sufficient answer to the Augustinian problem to show that there is nothing inconceivable in the fact of a consciousness of duration. In the foregoing, I have simply accepted the fact as a fact, and have made no effort to explain how it is possible that there can be such a consciousness. This latter task does not appear to me to fall within the legitimate province of explanation. We "explain" certain experiences by referring them to others, as we determine "where" a thing is by ascertaining its relations to other things in space; but to ask how it happens that there is a consciousness at all, or that it is constituted as it is, seems about as sensible as to ask: Where is all space? It is well to recognize that a "how" and a "where" may be so used as to lose all significance.

Nevertheless, certain philosophers have thought it necessary,

not merely to accept the fact of a consciousness of duration, but to go further and to explain how such a consciousness is made possible. An incomprehensible something was (can I say *was?*) timelessly present (*sic*) with the past, and is (can I say *is?*) timelessly present (*sic*) with the present moment. This holds the non-existent past to the existent present, and makes possible a consciousness of duration.

Can any man conscientiously maintain that all this ghostly apparatus renders more comprehensible the fact of a consciousness of duration? What is meant by timeless presence at all times? How does an immovable activity manage to hold things together? If we cannot expect clear information, at least we have a right to look for a hint. It is no explanation simply to say that an inconceivable something does something incomprehensible in an indescribable way. The fact is that this inconceivable something is not really any kind of a thing at all. The vague and inconsistent phrases in which it is described convey to the mind no definite meaning, and, to all appearance, are not intended to do so. I have criticised this timeless oddity elsewhere, and have given its pedigree,[1] so I shall not dwell upon it here. It is the shadowy survival of an ancient misconception, and its presence in philosophical systems can only be explained historically.

Finally, I feel justified in saying, touching this attempt to explain the possibility of a consciousness of duration, that it borrows what plausibility it may seem to have from the tacit assumption contained in the Augustinian query, *i.e.* from the *denial* of the consciousness of duration. How can I be conscious of a past that does not exist? asks Augustine. Can I be conscious of the non-existent? We have seen that this assumes it to be self-evident that we can be conscious only of the existent — which means the at present existent, or, in other words, the present. Even so T. H. Green assumes that the consciousness of the present needs no explanation, and that the consciousness of the past as such is an impossibility. As he must accept the fact that there is somehow such a thing as a consciousness of duration, it only remains for him to open an unexpected door in the blank wall that confronts us, by making the past in some sense present — present to a something not itself past nor yet present, a something that exists simultaneously, so to speak, all along the line.[2] Such a thing is

[1] See Chapter V.

[2] "Prolegomena to Ethics," Chapter I.

evidently a mere collocation of words, a series of marks on paper, not enough of a thing to be brought into court as a witness to the respectability of any other thing. But, by taking upon its shoulders the task of obliterating in its own person all temporal distinctions, it makes the past seem not quite a past and the present not quite a present.

Thus the past and the present seem in some vague way to run together. Time is rendered more incomprehensible than it was before; there may be a "presence" that is not in the present, an "always" that does not really mean at all times. Words have taken the place of thoughts, and clear vision no longer appears to be a desideratum. Surely it is better simply to accept the fact of the consciousness of duration, and to exercise such care in stating problems as not to create unnecessary pitfalls. Surely we are not compelled to assume gratuitously that different moments need to be "held together," and then to exercise our ingenuity in the invention of inconceivable entities to which we may assign this task.

CHAPTER XIV

THE REAL WORLD IN SPACE AND TIME

The preceding chapters have, I hope, made it clear that the real world in space and time is not a something given in intuition, but is a construct from what is thus given. The real world is, as it is sometimes expressed, a conceptual world. It is of no small importance to realize just what this statement means, and to avoid drawing from it unwarranted conclusions.

Are we justified in holding that space and time are conceptions? That depends upon the meaning that we give to the term "conception." The statement that they are conceptions may very easily be misunderstood. In trying to make clear in what sense the statement may be accepted as true, I cannot do better than go back for a while to that wonderful little old philosopher of Koenigsberg, whose sagacity often led him to hit upon truths which his followers would see with clearer vision could they overcome the amiable weakness of turning him into a fetich, and could they consent to criticise him with the same freedom with which they criticise living writers who propound epistemological theories.

Kant strenuously maintains that space and time are not conceptions, but are intuitions. Now, we have seen that he uses the word "intuition" in two senses, one of which is a very dubious sense, and the other not applicable to *real* space and time at all. And those who read him with discrimination will see that when he comes in certain passages to contrast intuitions and conceptions, he uses the word "intuition" in what may with justice be regarded as a third sense, and one of such importance that it should be distinguished with accuracy. The passages to which I refer are the following: —

"Space is not a discursive, or, as it is called, a general conception of the relations of things, but it is a pure intuition. For, in the first place, we can represent to ourselves but one single space, and when we talk of many spaces, we only mean by the expression

parts of one and the same space. And these parts cannot antecede the one all-embracing space, as constituents out of which it can be built up. They can only be conceived as in it. Space is essentially one; the manifold in space, and, hence, too, the general conception of spaces, depends wholly upon limitations." [1]

"Time is not a discursive, or as we say, a general conception, but is a pure form of sense-intuition. Different times are but parts of one and the same time. But a representation which can only be given through a single object is an intuition." [2]

There is contained in these extracts a truth which nearly every one will be heartily inclined to accept. I stand at my study window and look out upon the roofs of the city. The world in space seems to be spread out before me. My body, my window, the nearer roofs, the more remote, the steeples in the distance, the faint blue curve of the river, the shadowy woods beyond — all these have their places in the same one space. They are neighbors who divide the ground between them, and what one gains another must lose. To speak of any one of them as in a space of its own independent of and unrelated to the space occupied by the others is absurd. I am looking at a whole composed of parts, and no part is independent of that whole. Each thing has its place; a thing may be conceived as changing its place, but only in the sense that it leaves one place and moves into another which is there waiting for it. However individual things in this field may move about, they must belong to the field. They may change, but they cannot lose, their relations to all other things in it.

Thus this whole expanse seen from my window may be regarded as, in a sense, a single thing. It is like the desk which I see when I turn my head. I could not see a desk, in any intelligible sense of the words, if one part of it were in one space and another in a space unrelated to the former. Similarly, I could not enjoy a view, if my body, my window, the several roofs, the steeples, the river, and the distant wood, really belonged to different spaces which did not take their places as parts of a whole.

Nor do I conceive the space occupied by the things I have enumerated to be, even when taken as a whole, an independent and unrelated thing. Beyond those woods there must be some-

[1] "Critique of Pure Reason," Metaphysical Exposition of the Conception of Space.

[2] *Ibid.*, Metaphysical Exposition of the Conception of Time.

thing. I believe that there are other objects more or less similar to those that I see; and I conceive of them as occupying spaces related to the spaces occupied by the things that I see, as the latter are related to each other. When my thought sweeps a wider circle, I am ready to affirm the same thing of the sun, the moon, and the stars. The things just before me are in the one space-system with the remotest of the heavenly bodies, and form a part of a perhaps boundless universe of matter, all of which lies in the one space — which does not, of course, mean that all material things are in the same place, but merely that they are really in *places*, *i.e.* are related to each other as one part of this desk is related to another.

It is possible, then, to regard the physical universe as, in a sense, a single thing, an individual, of which all that lies before me in my present experience is but a very small fragment. The distinction between what is individual and what is general, or, to use the old terminology, between *intuition* and *conception*, is a commonplace of the traditional logic. This man walking in the street below me is an individual; he is a thing occupying a definite place and time in the material universe, and is thus a constituent part of that universe. Man, the abstract rational animal of the text-books, is general, not individual; a something which cannot be placed in the street below me, or, indeed, anywhere else; a something without local habitation, which cannot be regarded as part of the material universe at all.

I shall not here enter into the immemorial dispute touching the object of the general name. It is enough to point out that we do constantly distinguish between man in the abstract and this or that particular man. Upon this distinction Kant falls back in the extracts above quoted, and he insists that space is an intuition, a something given as an individual thing, and not a concept or general notion. Space, he insists, is not a mere name for all individual spaces, as man is a name for all individual men. It includes them, as man does not include men. It is a single object, and "a representation which can only be given through a single object is an intuition."

That Kant is quite right in his contention that space is not a conception in the sense of the word above indicated, there can be no doubt. We do conceive of the whole physical universe as in one space, and of individual things as occupying portions of that space. The learned and the unlearned are agreed upon

this point. It would be mere nonsense to speak of a *universe* of physical things not thus related. But when we call this one space an intuition, we should be most careful to make clear to ourselves and to others just what one has a right to understand by the word.

It is evident that even what I claim to see when I stand at my window is not really given in intuition in the strict sense of the word. At a given moment I am intuitively conscious of a certain complex of color-sensations. This I interpret in terms of tactual and motor sensations, and thus *perceive* a certain number of tactual things. But it must not be overlooked that even the visual sensations that represent the things seen from my window are not all intuitively present at any one moment with that vividness and definiteness that admits of their satisfactory interpretation. The eyes must move about and gather up the view bit by bit, or things remain virtually unseen. And if it is impossible for all the visual sensations to be present in usable form at a single instant, one is tempted to say that it is doubly impossible for the full meaning of these sensations, their interpretation in terms of touch and movement, to be intuitively present to consciousness at any one time. To imagine for a moment that I can represent to myself the world of things as seen from my window, just as completely as I can a single letter written down on this paper before me, seems almost as foolish as it would be to suppose that I can really pass in thought over the distance from my window to the sun, and hold intuitively before the imagination the amount of movement which would be necessary to measure it.

The world as it lies before me is, then, not a thing directly given in intuition, even if I stop at the world of common knowledge, and refuse to follow the scientist into the unseen region in which atoms and molecules disport themselves in a space infinitely divisible. What is intuitively present in consciousness is not enough to constitute such a world. It can only represent it. It is, indeed, the *symbol*, and the world is the thing symbolized. If there is reason to believe this to be true even of the scrap of a world seen from my window, there is the more reason for believing it to be true of the great whole of which this is a part. To believe that all this is intuitively present in consciousness is simply absurd. We *think* it; that is to say, there is intuitively present

in consciousness that which represents it; but that is all that we can say.

The same reasoning may be applied to time. It would be absurd to maintain that time, the one real time in which we conceive all the changes in the material universe to take place, is a concept or general notion. As space is made up of spaces, so time is made up of times. The hour which has just passed is distinct from every other hour, and has its definite place in the series. The changes which have been taking place during that hour are not changes in general, but have their fixed position in the whole series of changes which we conceive to make up the life-history of the universe. The conception of that life-history as a whole is not a general notion applicable indifferently to many things; it is the notion of a single life-history, the one constituted by these individual occurrences.

Now it must be evident to any one who will reflect upon the matter for a moment, that it is impossible to be intuitively conscious, in the strict sense of the words, of the whole content of any considerable portion of time. I seem to be able to bring before my mind with some detail the occurrences of the past hour. But it would be absurd to suppose that I can summon before me in retrospect every single view in this panorama, and it would be preposterous to maintain that I can sum them all up and hold them before my mind as though spread on one canvas and illuminated by a single flash. I can *think of* the occurrences of the past hour, and, in doing so, I am, of course, intuitively conscious of something; but that something is a mere symbol, and is vastly less rich in content than that which it represents. It is the merest skeleton, the barest outline, the blur of blue that represents the leafy wood with its numberless effects of light and shade.

And just as *real* space does not mean to me merely the space over which I can sweep my hand, the space which at least *seems* to be intuitively given, but means rather the space of the *real* world, the space regarded by science as infinitely divisible, the space of atoms and molecules and their imperceptible motions — so *real* time does not mean merely the duration which presents itself as such intuitively in consciousness. The passing second can be measured in the laboratory in thousandths of a second, and occurrences which do not present themselves to any human

consciousness as having successive parts can be proved to have such parts. As the vibration of an atom takes place in *real* space, so its frequency can be measured in *real* time. Neither this space nor this time can be given in intuition. They are known only symbolically. Thus, in order to prove that the content of a given period of time cannot be given in intuition, it is not necessary to choose so long a period as an hour or a day; a minute or a second will serve the purpose. On the absurdity of maintaining that all time — all the occurrences in the whole life-history of the world — can be given immediately in intuition it is surely unnecessary for me to dwell. No one who has not been led into error by the ambiguity of the word "intuition" could seriously support such a doctrine.

It is, then, clear that what is given in intuition in the strict sense of the word is but a symbol of the real world in space and time, and should never be confounded with it. We conceive the real world in space and time to be infinite and infinitely divisible. What is given in intuition is not either. But the world in space and time, the object of our symbol, is an individual, not an abstraction. That is to say, the expression "the world" does not mean to us that which many individuals have in common. When we use it we refer to the one great complex made up of all the real things we know and many more which we assume to exist.

Whether one will elect to call this an individual or not, will depend upon his taste in the use of terms. Certainly it is not marked out from other individuals by constituting, with them, a part of a larger whole; for there is supposed to be no larger whole. It is not sensible to ask: Where is all space? or: When did all time begin? But when we discuss the world, we treat it as an individual in that we concern ourselves with the parts which constitute it. We act as though we were dealing with a "thing," not with a class of things, and, to use the terminology of the old logic, our divison is "physical" or "metaphysical," never "logical." Since space and time are in this sense individual, Kant applied to them the term "intuition." There can be no great harm in using the term thus, provided we are careful not to be misled by it. Of course there is always a danger in using the same word in two or three different senses, for it is so fatally easy to slip insensibly from the one to the other. The danger is the greater when, as in the present instance, the several senses are

rather closely related. That Kant did not keep the different uses of the word distinct is sufficiently evident.

It has probably been noticed that, in the foregoing, I have passed from space and time to the things in space and time and *vice versa*, as though it mattered little of which I was speaking. And yet my right to pass in this way from the one to the other would be disputed by many. As we have seen, Kant maintains that infinite space and time are given in intuition, but finds it necessary at the same time to offer some sort of proof of the infinity of their content. This means that we immediately perceive that space and time are infinite, but must discover some evidence that the world is infinite, has existed endlessly, and will endlessly exist.

The notion that our knowledge of space and time is thus independent of our knowledge of things is a venerable error, and it would be interesting to trace its history. More than two thousand years ago Melissus of Samos argued that Being must be infinite, on the ground that if it be finite, it must be limited by the void, which is not an existing thing, and, hence, is incapable of limiting anything. In this argument he both denies existence to empty space, since he cannot regard it as a thing, and he assumes that it is infinite, or how could he affirm that limited Being must lie in the void? His argument is identical with that of Kant, and owes its existence to the same impulse that moved the German thinker.

We can sometimes detect the presence of this impulse even in those who make a show of denying the infinity of space or time. For example, St. Augustine supposes the question to be raised: "What was God doing before he made heaven and earth?" To this question he magnanimously decides not to return the evasive answer: "Making hells for those who pry into mysteries!" He will answer it seriously; and he does so by taking the position that, before heaven and earth were created, time did not exist. It is, hence, foolish to ask what was then taking place, for there was no "then."[1] But it is easy for the reader to detect that he does really recognize a "then," and pieces out the deficiencies of time with the aid of "eternity." Like Melissus, like Kant, like Hamilton, like Spencer, like a host of others, he assumes an infinite as self-evident; and in this he is actuated by

[1] "Confessions," Book XI, Chapters 12 and 13.

the same motive that inclines us all to assent to the statement that space and time are infinite, even when we regard it as at least uncertain whether the same thing may be said of the world that lies in space and time.

Here it may be objected that in the very use of the contrasted expressions "space and time" and "the world that lies in space and time" — expressions in common use and which seem eminently natural — I am suggesting to the mind that the frame and its content are in some sense independent things and may conceivably be treated independently. If space is one thing, and the real world another, why may we not know space to be infinite whether we know the real world to be so or not? If time is one thing, and the series of real changes which make up the life-history of the universe is another, why may we not know that time is infinite even when we are ignorant of the extent of the life-history which we conceive as lying in it?

But this view of space and time makes them something very like "things," and upon reflection we find that we are not really willing to accord to empty space and time the dignity of being "things" in any unequivocal sense of that word. Democritus did, it is true, wax very bold, and maintain that "thing does not more really exist than no-thing," but few have had the courage to take this position, with all that it seems to imply. Space and time have, as we have seen, inconsistently been treated as things and yet not things, shades that must remain inarticulate until some reality has been put into them by the draught of blood which put new life into the friends of Ulysses.

We may, then, freely admit that men seem naturally inclined to believe that they have a knowledge of space and time independently of their experience of the real world, and we may as freely admit that expressions in common use seem to suggest that space and time are independent quasi-entities. But we should, at the same time, point to the incoherencies and absurdities which arise when one embraces such beliefs or is misled by such suggestions. We should point out how such misconceptions come to exist. We should show why it is that men welcome rather hospitably the statement that we intuitively know space and time to be infinite, and shake their heads over the corresponding statement that we know the world to be limitless and eternal. We can perfectly well explain this tendency with-

out having recourse to ambiguous uses of the word "intuition," or advancing pretended arguments which shamelessly assume in the premise what is to be triumphantly exhibited in the conclusion.

As I pass my finger across the *grille* of carved wood that composes the back of my oaken chair, I have what I recognize as successive experiences of filled space and empty space. The bits of wood are "things," and they seem to be separated by empty spaces. Reflection reveals that the "things" of which I am thus conscious are complexes of tactual sensations combined with, or measured in terms of, motor sensations, while the empty spaces are given to consciousness as certain quantities of motor sensation taken alone.

This rather primitive experience of things separated by spaces lies at the foundation of, and makes possible, the more elaborate conception of larger objects separated by larger spaces — of a universe consisting of the earth, the planets, the sun, and all the rest of the innumerable company of heaven, which we do not conceive to fill space continuously, but to swim in the void at distances from each other which it wearies the imagination to strive to grasp even through the symbol. And when we turn our thought from the space of common life to the space of science, the fine-spun space of atoms and molecules, we carry over to it the same experience. We conceive that this seemingly continuous bit of paper is not really continuous, but consists of a swarm of atoms in rapid motion and separated from one another by distances great in proportion to the size of the atoms themselves. Whether we speak of worlds or whether we speak of atoms, the distinction between filled space and empty space remains to us the same. It is the distinction between sensations of movement which measure sensations of touch, and sensations of movement which do not measure sensations of touch, but serve to measure the relations between groups of touch sensations.

Thus the real world as it seems to present itself to us is a vast complex of tactual things standing to each other in relations which are measured in terms of sensations of movement. It is, in other words, a world of things separated by distances. But it is one thing to say that the world seems to us to present this contrast of filled and empty spaces, and quite another to say that any given spaces are really empty. We have in our everyday experience abundant evidence of the fact that spaces which seem empty at

one moment may at the next, as when the sunbeam pierces the blind at the window, be observed to be not empty at all. It is clearly not for the metaphysician, by juggling with apriorisms, to establish the non-existence of a vacuum in nature, but for the scientist, by the use of the approved inductive-deductive method, to prove or disprove the existence of matter in what seems to present itself as void space. Whether there are empty spaces between the real things which constitute the world, or whether these spaces are to be regarded as filled with something — with ether or what not — is something to be proved in somewhat the same way as it is sought to prove that there are atoms and molecules.

Nevertheless, it is perfectly possible to *conceive* that between the real things which constitute the world there are void spaces, and it is also possible to conceive that the universe of matter is limited in extent and is surrounded by empty space. It is necessary, however, to understand clearly what one means by such statements, and to avoid giving them an interpretation which is plainly erroneous.

Let us first consider the statement that it is possible to conceive of things as separated by void spaces. The question will at once be raised: Do not these void spaces really exist? and must they not, then, *be something?* This is the old problem that perplexed the Eleatics.

To the question whether the void spaces are real, we may answer: Yes, if we mean by this only that things really stand to each other in such and such relations; or, in other words, that they are at such and such distances from one another. No, if we mean that the relation is to be turned into a real thing that is supposed to remain when the things between which it obtains are taken away. The real world which we build up out of our experiences is a world of things of a certain kind; it is a world of extended things separated by distances, and the things influence each other in definite ways which cannot be described if the relations of the things — their distances and directions — be left out of account. It is one thing to recognize the relations between things as real, and it is quite another to turn those relations into things of an unreal and equivocal sort. It is one thing to recognize that things are at a distance from each other, and another to turn the distance itself into the ghost of a thing.

But, it may be objected, when we speak of space, we mean *more* than the actual system of relations which obtains between extended things. I answer, we undoubtedly do; we mean, not merely the actual system of relations, but the system of all theoretically possible relations as well. The actual relations of things are constantly changing, and the relations which happen to exist at any moment may be regarded as merely representative of an indefinite number of other relations which might just as well have been actual. We have seen that *real* things are never given in a single intuition, and that what may be thus given can, at best, be regarded as merely representative of an indefinite series of possible experiences which in their totality express the nature of the thing. In the same way we may say that *real* space, which is the whole system of relations of a certain kind between real things, cannot be the object of a single intuition. By real space we never mean only this particular distance given in this particular experience. We mean all the actual and theoretically possible space-relations of real things in the real world.

About time one may reason in precisely the same way. Space and time are, thus, abstractions. They are the *plan* of the real world with its actual and possible changes. But this plan is not a something of which we have a knowledge independent of our knowledge of the world. This ought, I think, to be clear to any one who has followed the reasonings of the chapter on the Berkeleian Doctrine of Space. We certainly do not perceive immediately that space and time are infinitely divisible. Subdivision speedily appears to result in the simple in each case. Why, then, do we assume that they are thus divisible? No conceivable reason can be given save that, in our experience of the world, such a system of substitutions obtains — a system within which the seemingly indivisible intuitive experience takes its place as the representative of experiences that are divisible, and, magnifying its function, sinks into individual insignificance. The plan stands out; the particular experience is lost sight of so completely that many able writers are capable of wholly misconceiving its nature. The plan is, then, abstracted from our experience of the world of things; but when we have the plan we can work more or less independently of the experiences from which it has been abstracted, and we can satisfy ourselves, by verifying our results from time to time, that we are not wandering in the region of

dreams, but are doing something that has a meaning within the realm of nature. But what meaning could a millionth of a millimetre or a thousandth of a second have to one who had never had the complex series of experiences which reveals real things and real events? They are not given in any experience except symbolically, and the only thing that can give significance to our symbol is the series of experiences in which a real world is revealed.

Hence, to the question whether a vacuum can be conceived to exist within the world, I answer: Undoubtedly it can. But please do not substitute for the meaning: "exist as a vacuum," the very different meaning: "exist as some kind of a thing." It is easy to slip from the one meaning into the other, and philosophers have done it again and again. Space and time are the *plan* of the world-system. They really exist in the only sense in which such things can exist, *i.e.* they really are the plan of the system. The difficulties which seem to present themselves when men inquire whether they have real existence arise out of the fact that this truth is not clearly grasped.

Kant thought it possible to conceive of a vacuum within the world, but impossible to conceive of the world as lying in void space and time. "Space filled or void," he writes, "may be limited by phenomena but phenomena cannot be limited by an empty space without them."[1] One may, of course, object to this that if void space is enough of a thing to have a real existence within the world, it ought to be enough of a thing to have a real existence beyond its limits. But we do Kant an injustice if we fail to recognize that at least a seemingly plausible reason may be given for the invidious distinction which he draws.

As we have seen, the real world seems to consist of tactual things separated by distances. The reality of the distances, their existence as actual aspects of being, appears to be guaranteed by the fact that they are the actual distances beween real things. Now, if the universe be limited, can we say that any distances beyond its limits are in the same sense actual? The earth and the sun are, at a given moment, a given distance apart. Whether they be separated by filled space or void space, does not affect the question of the reality of this relation. But can we say that some cosmic body on the confines (if there be such) of the universe of

[1] "Critique of Pure Reason," First Antinomy, Observations on the Antithesis.

matter stands in a similar relation to a material thing beyond that universe? Manifestly not. Can, then, anything whatever beyond the universe of matter be regarded as really existent? Can it be an "aspect" of that universe? The distances which we may, then, conceive to lie beyond the ramparts of the world are not real distances. They are not real relations between real things.[1]

This argument is not, I think, without some plausibility, but its weakness is sufficiently evident. I have said that when we talk of space we do not mean by it merely the existing relations of distance and direction in which things stand to each other at any given time. We include all *possible* relations as well. But it is theoretically possible that a real thing should exist beyond the limits of the finite universe that I have assumed, and another beyond that one, etc. Hence, there can be no objection to saying, even in the absence of real things, that there is space beyond. We have already thought this in thinking a "beyond" at all.

It is with space-relations as it is with numbers. If only 50 real things existed in the universe, we could still say with truth that $50+50=100$. This does not mean that 100 things exist, nor does it mean that numbers are shadowy existences which are independent of things, and can be affirmed to be, before we know anything about things. It only means that our number-system admits of such and such a legitimate extension, and that, hence, if there are 50 things and 50 things, there must be 100 things. It does not matter one whit to the arithmetician whether there actually exist 100 things or not. He is, indeed, ultimately concerned with things, or his number-system would be a mere play of fancy, and would have no bearing upon reality; but he is only indirectly concerned with things, and he may in much of his work leave them out of account.

Thus, when men declare space to be infinite, as they are usually very ready to do, they are not *affirming an existence* but are *recognizing a possibility*. They are recognizing the fact that there is no theoretical limit to their freedom of imagining extensions to a supposed limited universe. They are extending their space-system as his number-system is extended by the arithmetician.

That this is what they mean when they pronounce space to be infinite is sufficiently clear from the repugnance which they exhibit at the thought of granting to space such an existence as they grant

[1] Cf. *op. cit.*, First Antinomy, Proof of the Antithesis.

to things in space. If they do not realize clearly what they really mean by space, they are in danger, as we have seen, of making it a quasi-thing, a thing and yet not a thing, a thing too real to be banished and yet not real enough to be capable of standing alone, an insistent but feeble-kneed spectre. But those who wander cheerfully thus far upon the path of error, are unwilling to go a little further and make space consistently a thing. Time and number, about which one may reason in the same way, are still less in danger of being "reified," for they seem to be instinctively felt to be less robust and independent.[1] It is impossible to doubt the fact that men discern dimly, even when they are groping their way in rather a heavy fog, that, in dealing with space and time, they are not really dealing with things. *It is just because they do perceive this* that they are willing to declare space and time infinite, when they know perfectly well that space and time as infinite do not fall within their experience at all, that they are not conscious of infinite space and time.

Such being the nature of space and time, and such the significance of the statement that they are infinite, there can be no serious objection to making that statement, if it be properly understood. Indeed, it would seem odd to deny the statement, for it would be a virtual denial of an undoubted truth. But there must be no misconception. Space, for example, must not be turned into a thing or even into half-a-thing. Possible relations must not be made actual, and then things arbitrarily assumed to exist in order that they may stand in all these possible relations and bolster up their dubious being. It is palpably absurd first to assume unlimited ivy and then to assume unlimited oak upon which to wreathe it. It will not do to extort from a mere misconception such significant statements of fact as that there can exist no vacuum within the world-system, and no outer limit to the same system. These are dreams, not serious arguments, and they tend to bring metaphysics into disrepute with men of scientific mind.

I hope it is clear from the foregoing that the use of the contrasted expressions "space and time" and "the world in space and time," does not imply that the world is one thing, and space

[1] It has been my experience that the average undergraduate, in his primitive simplicity, is not loth to regard space as something very like a "thing"; he is much slower to admit the same of time, and he is usually ready to deny flatly that it can be true of number. I suppose that my classes are not peculiar in this matter.

and time independent entities of some sort. The real world in space and time is a vast complex of tactual things standing to each other in certain relations of distance and direction, and passing through a series of changes. The plan or system of its actual and theoretically possible relations and changes is what we mean by space and time. In this plan we have the "form" of the real world. And just as the real world is not given in any single intuition, but is a construct of great complexity, and implies many intuitive experiences built into a system, so its "form" is not the "form" of any single intuition, but the plan of the whole system of experiences in which the real world is revealed. Thus it is because the real world is what it is that space and time are what they are. They are abstractions from the real world, isolated aspects of it, and are in no sense known independently.

It is clear, then, that neither space, time, nor the world of real things, can be regarded as given in intuition in the first and strict sense of the word; but all three may be regarded as intuitions in the third sense — intuitions as contrasted with conceptions, the individual as contrasted with the general. But they are not independent intuitions, for the first two are abstracted from the last; and the real significance of much that Kant tells us touching the nature of space and time becomes apparent only when this is clearly apprehended.

Perhaps I should touch briefly upon one more point before closing this discussion. It is possible that the objection may be urged that, after all, when we try to conceive empty space, we do not really conceive *empty* space; that, when we think we are dealing with the void, we are really dealing with a sensation-content. Have we not seen that our initial experience of empty space is an experience of sensations of movement uncombined with sensations of touch? Are not these sensations something? And if so, can we say that space, as we conceive it, is not a thing in any sense?

Now, those who are inclined to regard the distinction between "form" and "matter" as ultimate would probably maintain that, although we gain our first experience of empty space in the consciousness of movement-sensations, and although every attempt to bring before the mind any space necessitates the imagining or feeling of some quantity of such sensations, yet the consciousness of space is not identical with the consciousness of this content simply. In this content they would distinguish between "matter"

and "form," between the sensational elements themselves and their arrangement, maintaining that the properly spatial element in the experience is the latter, and that it is possible to fix the attention upon this to the temporary exclusion or partial suppression of the former. This element, they would claim, is not a *content* in the ordinary sense of the word, though it is undoubtedly an element in consciousness. Those, on the other hand, who do not regard the distinction between "form" and "matter" as ultimate, would probably admit that empty space presents itself in our experience as simply movement-sensations uncombined with tactual sensations.

But whether one embrace the one position or the other, it by no means follows that one is forced to admit that we cannot conceive empty space. Empty space is not synonymous with "nothing at all"; it is empty space, and is quite distinguishable from empty time. The conception "thing" (when the word signifies real things in a real world) and the conception "nothing at all" do not exhaust all possibilities between them. What is meant by real things I have tried to show in the foregoing, and I have strenuously insisted that space and time must not be turned into such things. But this does not mean that their real existence — not as things, but as space and time — must be denied. By the distance between two things we do not mean a third thing; but neither do we mean nothing at all. The apparent difficulty clearly lies in the ambiguity of the word *thing*, and the facility with which one may pass from the broader sense in which it is used to the narrower. In its narrower sense we contrast *things* and the *relations between things;* we are concerned with the material world and its aspects. In its broader sense we contrast *thing* with *nothing*, and we, of course, see that no element in consciousness can be regarded as nothing at all. It is manifestly illegitimate to slip in any discussion from the one meaning of the word into the other. It is absurd to argue that, because something is in consciousness when we think of empty space, therefore we cannot really be thinking of *empty* space, but must be thinking of a *thing*. In the foregoing discussions, when it was denied that space and time could be regarded as things in any sense, reference was had, of course, only to the narrower meaning of the word. This is the only meaning in which it is worth while to raise the question.

CHAPTER XV

THE WORLD AS MECHANISM

THE analyses of the psychologist and of the metaphysician reveal to us that the real world in space and time is an orderly system of things given in terms of touch and movement sensations. This is the world of matter in motion which the science of mechanics attempts to describe to us. It is quite possible to treat of it intelligently without being either psychologist or metaphysician, for one may confine oneself to certain aspects of it without attempting to discuss certain others.

When a physicist loosely describes matter as "everything that one can touch," and then busies himself with the changes that take place in the world of matter, ignoring all epistemological problems, he confines himself to a definite field of investigation, and the results he obtains within that field need not be at all vitiated by the fact that he neither raises nor suggests certain other questions with which other men busy themselves. Without leaving the plane of the common understanding, he may ask himself whether he is to look upon the material world as through and through a mechanism, or whether he must abandon this conception as being unsatisfactory. He has a right to expect that the arguments *pro* and *con* will be such as to appeal to men of intelligence who are not devoted adherents of this or that metaphysical theory.

Notwithstanding the fact that a series of eminent names may be cited as favoring the opposite doctrine, the statement does not appear unwarranted that the man of science, as such, is coming to incline more and more to the view that the changes which take place in the world of matter form an unbroken series and are all explicable according to mechanical laws.

It ought to be frankly admitted by every one that the material world is not *known* to be such a system. We may, indeed, conceive it to have swept through an unbroken series of changes, from the cosmic mist in which our ignorance looks for its begin-

nings, to the organized whole in which vegetable and animal bodies play their part; but, even as we call before us the vision, we realize that it is revealed only to the eye of faith, and is but dimly discerned through the obscurity which enshrouds it. Even if we leave out of view the difficulties connected with the structure of the atom and the nature of the ether, we are forced to admit that scarce so much as a beginning has been made in the direction of a mechanical explanation of the combination of atoms into molecules and the origin of the kinds of matter of which, as the chemist informs us, our world is made up. Given, too, the chemical elements and the laws of their combination as empirically known to the chemist, we still search in vain for an explanation of the phenomena of living organisms, and fail to account for their appearance upon this planet. Chemistry, physics, biology — these are as yet relatively independent realms, and it remains for a perhaps far distant future to give them all a solid basis in mechanics and thus to unite our present fragmentary glimpses into the nature of things into a reasonable and comprehensive whole. We have a collection of sciences whose relations to each other are not clearly seen. We have not yet a science which can string on a single thread the beads that we have with such labor collected together.

But it is one thing to admit our present ignorance, and it is quite another to maintain that it is, in the nature of things, ultimate and irremovable. The steady growth of science encourages those who are imbued with the scientific spirit to hope that, in our knowledge of nature, discontinuity will gradually give place to continuity, and that there will become more and more clear before our eyes an orderly mechanical system, the successive stages in the evolution of which will not have to be accepted as inexplicable fact, but will be seen to be the appropriate steps in a series of changes, the inevitable succession of which we may infer with confidence, and which we are unable to comprehend only where we are still hampered by our ignorance.

That this faith in the mechanism of nature is justified cannot be proved by the philosopher in his closet. It can be proved only by the actual extension of our knowledge of nature, and until this has taken place, the doctrine can be no more than a working hypothesis. It is, however, sometimes urged that it should not be held even as a working hypothesis, and various considerations are

brought forward to prove that the doctrine is inherently absurd. Upon certain of these I shall dwell briefly in what follows.

1. It has recently been ingeniously argued[1] that the fundamental concepts of the science of mechanics are found, when carefully examined, to be self-contradictory and absurd. The detailed discussion of Dr. Ward's strictures may safely be left to the student of natural science. But it is not out of place for me to point out here that the criticism as a whole appears to arise out of a misconception of the foundation upon which the science of mechanics rests.

It should not be forgotten that the science of mechanics, like other sciences, has its foundation in our common experience; that it is merely the systematization, refinement, and extension of our ordinary knowledge of things and their motions.

The savage, who uses a stick to pry a stone out of its setting, the boy who throws a bit of coal at a cat, even these have made a beginning in the knowledge of a mechanical system of things. That no little advance has been made from such a beginning is patent to any one familiar with contemporary science. The notion of mechanism is a perfectly familiar one, and to it we constantly turn for an explanation of changes which we perceive to be taking place in the world about us. Whatever may become of the doctrine of atoms and molecules, it remains true that we can calculate with some degree of accuracy the position of the moon with reference to the earth on a particular day and hour, and we can trace with some accuracy the path of a projectile. Whether we may not justly expect to find in the notion of mechanism the explanation of all the changes that take place in the material world, is a question that it is by no means absurd to raise, even when one is not at all in a position to prove that all changes in matter are mechanical. One may raise the question, and may be inclined to give it an affirmative answer, although one be in doubt whether any proposed theory of the intimate constitution of matter be the correct one.

Very early in the history of speculative thought it occurred to men's minds that those things which, by reason of their minuteness, are concealed from our view, might be reasoned about by analogy with those things which are more open to inspection. With the principle itself we can have no quarrel. We act upon such prin-

[1] Dr. James Ward, "Naturalism and Agnosticism," Part I.

ciples in every department of human thought. It is, of course, important that we should not reason loosely, and should not too hastily arrive at conclusions. And if any assumptions which we have been impelled to make should turn out upon closer inspection to entail consequences which we cannot accept, we should know how to repudiate those assumptions without tossing overboard with them that whole body of observed facts and well-grounded generalizations which have established their right to be regarded as a science, if only an imperfect one.

There is such a body of facts and generalizations that constitutes the science of mechanics. To laugh at this science because it has its limitations is unwise, and it is a misconception to suppose that a science must be completed before it can have a foundation. In the present instance, it is the apex of the pyramid that is hid in clouds, not its foundation, for this lies in plain view, and no man can afford to despise it.

What are commonly called the fundamental principles or concepts of the sciences are not fundamental in the sense that they must be definitely established and placed beyond the possibility of being called in question, before the science can be built up at all. Such principles or concepts are the ideal of a completed science, if such a term may be used. They are not to be found in a science in the making. Hence one may freely admit that men of science are not at one touching the final definition of matter, and are not agreed upon the proper formulation of the laws of motion, without on that account being compelled to deny that there is such a science as mechanics, and that in it we find a satisfactory explanation of a vast number of the changes which we observe to be taking place in the world.

And one may make these admissions without being compelled to abandon the hope that, with the extension of human knowledge, a vast number of other changes, which cannot now be seen to find their explanation as these do, may be found to fall in the same general class, and may become luminous with a significance now denied to them. It is dogmatism to insist that the material world cannot be a perfect mechanism, merely on the ground that, in the present state of our knowledge, it cannot be proved to be such. What we should ask ourselves is this: What, on the whole, is it reasonable for us to believe, and with what degree of assurance should we believe it? He who is accustomed to weigh evidence,

and who realizes the limitations of our actual knowledge, will take his position on such a subject tentatively, and will hold himself in readiness to abandon it when good reason is adduced for his doing so.

There is one general consideration, touching the attitude of Dr. Ward and of many other persons toward the mechanical view of the system of nature, that is of no little significance. It is this: The energetic rejection of the doctrine that the material world may be regarded as a perfect mechanism appears to arise (if one may judge by what is written upon the subject) out of the conviction that such a view of the world militates against certain beliefs to which men cling with a good deal of energy and which they relinquish with reluctance.

We do not find that attacks upon the conception of mechanism are wholly destructive in their aim. Those who cannot find in mechanics an explanation of the changes which take place in the material world, are inclined to find such an explanation in the action and interaction of minds. They do not merely abandon a proposed view of nature because they find it unsatisfactory, and content themselves with holding no view at all. They abandon one view to take up with another. It seems just to ask oneself whether, if there were the same emotional bias against the second view that appears to exist against the first, it would be found so satisfactory as many seem to find it? Are there no difficulties connected with the second view? Do we there find everything clear and comprehensible?

Let us suppose, for the sake of argument, that we discover, upon reflection, that the conception of matter remains to us obscure; that we can gain no very clear notion of what is meant by mass; that we are more or less in the dark as to how the idea of causality can be connected with the changes in the material world; that the laws of motion, as at present formulated, do not seem to us to account satisfactorily for the behavior of all material particles in the presence of each other. Shall we on this account repudiate the science of mechanics, and give up all attempts at a mechanical explanation of the changes which take place in the world of matter?

If so, what should we do in the case of mind? Are there no disputes as to the ultimate nature of the mind? Is there a science, or even the beginning of a science, that sets forth with any

approach to clearness the relation of mind to matter, and the method by which minds act upon material particles or upon each other? Is it more evident what is meant by causal efficiency when one speaks of minds than when one speaks of masses of matter? "Intersubjective intercourse" is a sounding phrase that calls our attention to the fact, recognized in our common experience, that, *in some sense*, minds stand in relation to each other. But in what sense? How can a mind be related to another? Has the vague knowledge of the plain man really been replaced by something that has a right to be regarded as science? Surely the science of mechanics, unsatisfactory as it may be, has progressed far beyond our knowledge of mind, of its relations to matter, and of its relations to other minds.

Here we see in a glass, darkly; each man is busied with his own speculations, and they are worth all the labor which he devotes to them. But a science we have not, unless we extend the meaning of the term so as to cover those tentative gropings for the truth which precede established knowledge. To find fault with the science of mechanics, and to take up with the vague notions which men have of minds, the activity of minds, the relation of minds to matter, and their relation to each other, is about as sensible as it would be to reject the refinements of the developed science of mechanics and take up with the crude mechanical notions possessed by the uneducated. That material things act upon one another, and that minds act and react, the plain man does not doubt. He sees nothing incomprehensible in the premises on the one side or on the other. It is the philosopher who becomes conscious of the inadequacy of his conceptions, and whose reflections sometimes tempt him to reject them altogether. But to treat one class of conceptions in the critical spirit of the philosopher, and to accept the other with the naïveté of the unreflective, is surely inadmissible.

If, then, it is right to lay great emphasis on the difficulties which suggest themselves when one undertakes a critical investigation of the fundamental concepts of the science of mechanics, it must be equally just to emphasize the difficulties which arise when one endeavors to make quite clear to oneself what is meant by minds, their relation to material things, and their relation to each other. If one insists upon clearness and consistency in the former field, and is content to get along without it in the latter,

it must be either that, in the latter field, the attainment of exact knowledge is looked upon as, in the nature of things, hopeless; or that the deficiencies of our knowledge are hidden from us by an emotional bias that inclines us strongly to adopt certain doctrinal statements whether they are clear to us or not.

2. Thus we see that one cannot, by merely dwelling upon the present limitations of the science of mechanics, prove that it is unreasonable to assume, as a working hypothesis at least, that the material world is a mechanism all the changes in which can be accounted for without passing beyond it to something else. Let us make such an assumption.

In the orderly succession of the states which constitute the life-history of this organism we have the physical order of causes and their effects. It is, of course, clear that our knowledge of physical causes and their effects must be imperfect as our knowledge of the world-mechanism is imperfect. The boy who strikes a dog with a stick recognizes the answering yelp as a consequent, to which the movement of the stick is a corresponding antecedent. The physiologist interpolates an extremely complicated series of occurrences between the two, and regards the blow as by no means a proximate cause, while admitting it as a member in the causal nexus. Both recognize the relation of cause and effect, but to the latter the whole system has become a vastly more complicated thing than it is to the former. And the metaphysician, who may come to the conclusion that there is no assignable limit to a possible increase in the minuteness of our knowledge of the real world and its changes, may not unreasonably deem it absurd to use the expression "proximate cause" in any but a relative sense. Still, he has the right to use it to indicate an antecedent which, in the actual state of our knowledge, seems to be nearest to a given consequent.

In the relation of cause and effect, when thus conceived, there seems to be nothing very occult or mysterious. The conception of causality seems, however, to be a stone of stumbling to some, and it is worth while to devote some time to its analysis, notwithstanding the fact that it has been discussed, and well discussed, by various writers. In connection with it there appear to arise some very general misconceptions, and misconceptions which may materially modify one's view of the mechanism of nature.

In common life we are in the habit of picking out that element

in the total antecedent of an occurrence which happens to be for some reason of peculiar interest and importance, and of calling it *the cause*. This may easily occasion mistaken notions of cause and effect. We point out that Smith was the cause of the accident that happened to Jones, in that he handled his gun carelessly. Jones himself we do not speak of as contributing to the result. Yet it is quite clear that a man cannot be shot *in absentia*, and the bodily presence of the injured man was an indispensable part of the antecedent if the occurrence were to take place at all. When we leave the interests of common life and pass to the scientific contemplation of the order of nature, we must view things with an impartial eye, and must not give Smith more credit than he deserves.

In common life we emphasize the distinction between agent and sufferer. At times we regard ourselves as actively bringing about changes in other things, and at times we deplore the fact that external things bring about changes in us. We look upon ourselves as active when we move along the street in pursuance of a desired end, and as wholly passive with respect to the falling tile that unexpectedly interrupts our progress. This distinction we carry over to things inanimate, and the notions of activity and passivity become more or less confused with those of cause and effect.

But in the conception of nature as mechanism this distinction between active and passive wholly vanishes. The moving billiard-ball comes in contact with the ball at rest. The former comes to rest and the latter is set in motion. We are at first inclined to regard the one as active and the other as the passive recipient of its activity. But a little reflection and the most elementary knowledge of mechanical laws make clear to us that the second ball has affected the first as much as the first has affected the second. A series of changes has taken place in the spatial relations of certain masses of matter, and it is only through misconception that we can regard a single mass of matter as responsible for the series of changes as a whole. When we do so we are carrying over to a field in which it has lost its significance, a conception which has its legitimate application only in another field.

The same reasoning may be applied to the case of the boy striking the dog. If we will regard boy, dog, and stick as merely a part of the material system of things, as collocations

of matter the changes in which take place according to mechanical laws, it is impossible to look upon the boy as active and the dog as the passive recipient of his action. When we do so regard them we are employing conceptions which have a significance only in the subjective world of desires and volitions, a world with which we have nothing to do so long as we confine our attention to the material universe and its motions.

To the eye with its field of view thus circumscribed, nothing is present save certain groupings of material particles which pass through a series of changes in their relative positions. The notions of activity and passivity have disappeared, but not so the notions of cause and effect. The changes through which the whole system passes are explicable according to the laws of mechanics, and each antecedent condition is the cause of the one which immediately follows it. The relation of cause and effect is a temporal one, and marks the order of the successive states in the life-history of the system; it is not a spatial one, which separates off one part of the system from another part. In other words, the boy and the stick cannot be made in some sort an antecedent, and the dog a consequent; but boy, stick, and dog are all antecedent, and are all consequent as well — the former at the one instant, and the latter at the next.

The erroneous popular judgment which would make the boy the sole cause of the dog's yelp, seems to arise from a double error: the attention is fixed upon a part of the total antecedent to the exclusion of the rest; and there is present the mistaken notion that only that can be a cause which is "active." The popular judgment is not without its justification from a practical point of view. It is not a mere accident that men come to think and speak thus. Nevertheless, the popular judgment is shot through with misapprehension and confusion, which should, in scientific discussions, be eliminated. The notions *cause* and *activity*, *effect* and *passivity*, should be carefully divorced from one another when we concern ourselves with an exact description of the changes which take place in the material world. That the notions activity and passivity are of the utmost significance in their proper field, one may freely admit. But it is important to bear in mind that, when we are studying the successive positions of matter in motion, we have nothing to do with them at all.

It is an imperfect apprehension of the distinction between

causality and activity that has misled certain writers[1] into thinking that natural science should drop altogether the notion of causality, and in place of an *explanation by a reference to causes*, substitute a *description* of the orderly series of changes that take place in the world of matter.

Just so long as he confuses causality with activity, will the student of mechanics, who sees clearly that the notion of activity has no place in his science, be inclined to deny that he has to do with causes and their effects. It is because he still thinks of "an explanation by a reference to causes" as something occult and mysterious — as a procedure akin to the blind gropings behind the veil of phenomena popularly attributed to the metaphysician — that he repudiates such explanations altogether and confines himself to what he calls "description."

But it is unwise to discard terms which for centuries have served a useful purpose, which are firmly rooted in men's minds and are fairly well understood even by those who cannot subject them to careful criticism, and which have no satisfactory equivalents but leave a gap when they are discarded. For such terms one cannot substitute terms with other associations without giving rise to suspicion and misunderstanding. It is far better to correct popular misconceptions of the proper significance of words in common use, and point out how such words may find their appropriate application. To insist that science has nothing to do with the indication of causes and their effects, when for centuries that has been supposed by its votaries to be its chief occupation, can only occasion bewilderment. To show, on the other hand, that there has been some error as well as some truth in the popular apprehension of the natural order of causes and their effects need not have this unfortunate result.

3. Closely akin to the error of denying that, in the succession of changes revealed in the material world, we have an order of causes and their effects, is the error of denying that the relation between an effect and its cause is a *necessary* one. An effect is not contained in its cause as the conclusion of a syllogism is contained in its premises; natural necessity is not logical or mathematical necessity. Seeing this, a man may feel impelled to deny that there is such a thing as natural necessity at all.

[1] *E.g.* Mach, "Popular Science Lectures," English trans., pp. 253-254, and Ward, "Naturalism and Agnosticism," Lect. II and XVII.

But the word "necessity" has, and has had for centuries past, two distinct meanings, and no man has a right to throw away one of them merely because it is not the other. To show that a given antecedent is a "necessary" antecedent or cause, it is not necessary to show that the consequent is logically contained in it and cannot be denied without self-contradiction. It is only necessary to turn to the inductive logic and see whether there is good reason to believe that the more or less complete elimination of other antecedents will leave this relation of antecedent and consequent virtually intact. The necessity of nature is but another name for the orderliness to be discovered in the system of things, and it is a repudiation both of the knowledge of things which obtains in common life and of the more exact knowledge characteristic of science, to maintain that we cannot attain to a more or less detailed acquaintance with this world-order. It is not the duty of the metaphysician to show what antecedents are "necessary" or "indispensable." It is the duty of the investigator of nature; and he can fulfil this duty perfectly well without paying the least attention to those mystical notions of causality which have in the past introduced a needless obscurity into human thought.

The relation between cause and effect is, therefore, a necessary one, in an intelligible sense of the word, and the denial of this necessity can only result in shaking that wholesome confidence in the order of nature possessed in some degree by the unlearned and in a higher degree by those whose knowledge of nature is more exact and extended.

Sometimes this denial proceeds from a desire to remove that feeling of apprehension which arises in many minds at the thought of this gigantic mechanism which seems to sweep through its series of successive conditions with the impassivity of fate — a world in which even a sparrow cannot fall to the ground except according to law; but one in which the dance of an atom, the fall of a sparrow, the death-struggle of a man, appear to have one and the same significance, and to be summed up in those more or less complicated formulæ which describe the motions of material particles with reference to each other. Even so keen a man as Professor Huxley tries this method of soothing the anxieties of those who contemplate such a world with discontent, and suggests that if we will try to eliminate from our thoughts of the order of nature the notion of necessity, and will bear in mind that we are

dealing with the mere relation of antecedence and consequence, we shall feel rather better.[1]

It is quite true that to the unreflective there may seem to be something less august and inevitable in the succession of changes which take place in the material world when one has denied necessity to nature and has elected to regard what takes place before one's eyes as a mere play of antecedents and consequents. The starch appears to be taken out of the fabric; it hangs more limp and diaphanous. And yet, what has one gained? The pattern is precisely what it was. If it was ugly then, it is ugly now. Figure succeeds figure in the same inevitable order, and he who had reason for complaint before, has lost none by the change. The word "necessity" he has found unpleasant, and some one has obligingly given the thing a new name. Even so may the trembling householder decide to call the midnight marauder a visitor, and feel reassured and comforted. Meanwhile the man has suffered a real loss. He has lost sight of a useful distinction, and the order of nature has come to seem to him less stable and dependable than it was before.

It is, then, through an incomplete apprehension of what is properly meant by natural necessity that one is led to deny necessity to the relation of cause and effect. And it is through a misapprehension of what is meant by *explanation*, that one is led to maintain that it is impossible to explain why certain causes should be followed by certain effects.[2]

[1] "Methods and Results," N.Y., 1893: "On the Physical Basis of Life."

[2] I know no better illustration of this exenteration of the notion of causality than that presented in the fourth chapter of Professor Pearson's "Grammar of Science." He discards the idea that a cause is the occult and mysterious thing that has sometimes passed by that name. He agrees with Mill in thinking that causation is "uniform antecedence." But he finds it necessary to insist that the relation of cause and effect is not a *necessary* one (2d. ed., pp. 113, 116, 118, 119), and he reiterates the statement that science, in discovering causes and effects, does not *explain* things: "Mechanical science no more explains or accounts for the motions of a molecule or of a planet than biological science accounts for the growth of a cell" (p. 115); "in no single case have we discovered *why* it is that these motions are taking place; science describes how they take place, but the *why* remains a mystery" (p. 120); "when we say that we have reached a 'mechanical explanation' of any group of phenomena, we only mean that we have described in the concise language of mechanics a certain routine of perceptions. We are neither able to explain why sense-impressions have a definite sequence, nor to assert that there is really an element of necessity in the phenomena" (p. 116). It seems odd that Professor Pearson did not see that, if science (in the broad sense of the word) had

It was remarked by Immanuel Kant that it requires some sagacity for a man to know what questions he may safely ask. The remark was a wise one. There is a sense in which it is proper to ask for the explanation of this or that occurrence, and there is a sense in which it is not. Both in common life and in science we are constantly seeking an explanation of what comes to pass, and are constantly finding certain explanations satisfactory. The fall of the apple to the earth, the motion of the moon in its orbit, the ebb and flow of the tides, all these we regard as explained when they are seen to be illustrations of the laws of mechanics. The particular occurrence in question is found to have its appropriate place in the mechanical world-order, and we should rest content with this, for this is explanation.

But if we will go on to insist that the whole mechanical system is a something to be accepted as inexplicable fact, we deserve any unhappiness that such reflections may occasion us. We extend the meaning of the word "explanation" quite beyond what is legitimate either in common thought or in science, and then complain that we lack an explanation of something, sadly electing to regard this something as "brute fact." This is not a recognition of the truth that no explanation can sensibly be asked for; it is an unwise insistence upon the fact that none is forthcoming, and, of course, carries with it the suggestion that it would be highly desirable if one *were* forthcoming. "Brute fact" means fact that stands in need of explanation and appears to lack it. To call the system of things as a whole "brute fact" is simply misleading.

4. Such reflections as the above should, I think, serve to set aside certain of the objections which some may be inclined to urge against the world as mechanism. If the conception of mechanism seems to us absurd, it is because we imperfectly comprehend what that conception is, as it is gradually growing clearer to science. If we deny the existence of material causes, it is because we confound the notions of causality and activity, or erroneously assume that a cause can only be something occult and mysterious, which must be eschewed by science. If we repudiate natural necessity, it is because we fail to perceive that the word "necessity" is an ambiguous one. If we insist that science cannot offer an explana-

really succeeded in finishing her task, there ought to be no *why* and no *mystery*. They disappear by absorption into the *how*.

tion of the occurrences in the material world, it is because we give the word "explanation" an unjustifiable meaning.

It is, however, quite possible for one to avoid these errors and yet to feel dubious about yielding assent to the doctrine that the world of matter is a perfect and independent mechanism, every change in every part of which must find its whole explanation in the system itself.

We are all impressed by the striking contrast between the living and what is recognized as mechanical. The word "machine" calls before our mind a steam-engine, a spinning-jenny, or a printing press; a gross clattering mass of metal, between which and a rose or a violet the difference seems to be world-wide. The machine obeys laws clearly seen to be mechanical, it is comparatively simple, it appears adapted to the attainment of a particular end, but is incapable of attaining it by any but the one direct path along which we have set it moving. The plant presents the phenomena of life; which means the direct opposite of all this. Into the indefinite complexity of its structure we have no means of seeing clearly; its growth and development cannot be shown to be the result of mechanical causes exclusively; it appears to move toward an end of its own, and to have a capacity for attaining this end by certain by-paths when for some reason the direct road is obstructed. The plant develops according to a certain plan, and after this plan reproduces its kind. When the end of a branch is pruned away, buds form and new sprouts make their appearance to carry out the idea with which the mutilation interfered. If we have here a machine, it is at least a machine which must not be brought down to the level of the mechanisms constructed by man to carry out his purposes.

And if we pass from plant to animal the contrast is, if possible, more striking. I have said above that, in the mechanical view of the material world, the boy who strikes a dog with a stick, and the dog that receives the blow, are simply masses of matter undergoing certain changes in their space-relations to one another, all of which changes are explicable by the laws of mechanics, and form an inevitable succession of states related to each other as cause and effect. Yet the fact remains that a boy whom we recognize to be of a certain stamp will, as we know before the act, hit the dog under the most varying circumstances — whether the animal be on this side of him or on that, within easy reach of him

or further away, standing still or moving. He will even chase him around the house again and again; in which case the description of the successive positions of the material particles which make up boy, stick, and dog, in their relations to each other and to other things, must attain to enormous complexity. The one certain thing, in the present incomplete state of our knowledge, seems to be that the boy will hit the dog — *i.e.* that, to speak mechanically, a certain final collocation of material particles will be attained. The path by which it is to be attained seems highly uncertain.

If, then, this boy and this dog are machines, they certainly differ widely from the machines which are commonly recognized as such, and it is manifestly an error to overlook the difference. It is possible to be so impressed by it as to maintain that the notion of mechanism must be abandoned altogether when one is considering such things, and with it abandoned the explanation by a reference to efficient causes which is the very sheet-anchor of science. On the other hand, one may estimate this difference at its full value, and nevertheless believe that the phenomena presented by living beings, growth, development, reproduction, activities of the most varied description, dissolution, — all would be capable of description in mechanical terms, were our knowledge and our intellectual powers sufficiently advanced. One may point out that the possibility of a detailed description of the processes by means of which things come about is not in the least incompatible with the recognition of the fact that such and such things do come about. In other words, one may point out that the existence of *efficient* causes — the "necessary antecedents" of which I have spoken above — is not incompatible with that of *final* causes, for these latter are only the ends which are attained through the instrumentality of the former.

It is a matter of common experience that it is quite possible to have a knowledge that such and such an occurrence will take place, and yet to be in the dark as to the series of causes which will bring it about. One may know that it is likely to rain, and yet have the vaguest possible notion of those atmospheric changes which give birth to the falling drops. Similarly, the simultaneous appearance of boy and dog within one's horizon may give rise to the conviction that sooner or later these two masses of matter will stand in the definite mutual relation referred to above;

and yet one may have no clear idea of the particular series of changes which will precede this particular result.

Thus one may know empirically that with one's gun at a certain elevation, with a given charge of powder, and with a given projectile, one may hit a target at a fixed distance. At the same time one may be quite unable to calculate the path of the projectile from the gun to the target. When one knows something of the science of mechanics, one no longer thinks of the beginning and end of this series of changes as constituting all that is worthy of attention in the occurrence as a whole. There are no longer one cause and one effect; there is an indefinite series of causes each followed by its effect, and the initial antecedent is no more important to the final result than are any of the others.

Those who incline to view the universe of matter as a perfect mechanism must look upon the series of changes which take place in the relative positions of the boy and the dog as constituting such a chain of causes and effects. They cannot admit for a moment that the end is fixed independently of the means. To them the end is simply one term in a complicated series, and its coming into existence is conditioned upon the links in the chain preceding it. But they may freely admit that they are sometimes pretty sure of the end when they are by no means clear as to the exact path by which it will be attained, as has been said above. They may point out that we can be very sure when we drop a ball inside of the rim of the bowl on the table before us that the ball will ultimately come to rest at the very bottom of the bowl, and yet we may find it difficult or even impossible to describe in detail all the motions of the ball before it comes to rest. Which means that in a causal series admittedly mechanical it may be possible to predict the appearance of a given term, even when we have no definite knowledge of those that precede it.

To all this it may be objected that it is easy to suggest that all the changes which take place in those masses of matter that we call living beings may find their explanation within the realm of mechanics, but it is another thing to prove that they actually do this. When the boy's gaze has once rested upon the dog, the end seems to be fixed, as in the ancient conceptions of fate, and the means appear to be conditioned by the end, not the end by the means. Can a mechanism select this and reject that, taking what serves a given end and refusing what does not? Has any one the

least conception of a mechanism that can pick and choose in this way? If not, why insist that living beings must be brought under the conception of mechanism?

To this one may answer that, even in the gross mechanisms constructed by man, we are not without some suggestion of selection. To get the bit of chocolate out of the metal case that stands against the wall in the railway station, one must drop the appropriate coin into the slot, just as one must deposit the appropriate coin in order to obtain a sandwich from the woman at the lunch-counter. And one wholly ignorant of the extent to which the construction of mechanisms has been carried, might easily be tempted to think that the motions of the machine that tests the weight of the coins committed to it, sorting out into different heaps the perfect and the imperfect, are determined by the end to be attained and not by a chain of mechanical causes. To one who understands the construction of such mechanisms there is nothing marvellous in the thought that a definite end will be attained as the result of a strictly mechanical series of processes, and that the attainment of other results will be provided against just because of this series of causes.

Between the most ingenious of such machines and the boy of whom I have been speaking, there is doubtless an enormous difference, and one which it would be foolish to overlook. But it should not be forgotten that between the human body and organic structures which are less highly developed there are also differences which are sufficiently striking. We are not compelled to pass at a jump from a weighing-machine to a man. There are forms of life that exhibit phenomena which, if they do not serve to bridge the gulf between the organic and the inorganic, at least bring us to the brink with a strong disposition to launch away. The evidences of what we are inclined to recognize as choice, in an unequivocal sense of that word, grow less and less as one descends in the scale, and the approach to mechanism, as we commonly think of it, seems a sufficiently close one.

If we elect to believe that all motions in matter cannot be accounted for by a reference to mechanical causes, where shall we make the break? Shall it be between the organic and the inorganic, or shall it be placed somewhere above this point? The question is not an absurd one, for, as the student of the history of philosophy well knows, thoughtful men have not been at one

touching the answer that should be given to it. The disciples of Descartes drew the line between man and all that lay below him. This would make the boy of our illustration something more than a mechanism, but the dog, who appears equally active, and almost equally ingenious, would be a mechanism and nothing more. Modern science, imbued as it is with a strong desire to remove what seem to be breaks in the orderly development of nature, would find it difficult, having gone as far as this, not to go farther.

The adherent of the view that the material world is through and through a mechanism may argue that the objection which has been urged to his view is, in so far as it really is an objection, nothing more than an *argumentum ad ignorantiam.*

If it be merely intended to point out that, on the slender basis of actual knowledge which we at present possess, modesty is an appropriate virtue, and dogmatism a thing to be deplored, even the most enthusiastic student of science should welcome the admonition. It is foolish to maintain that we know, where we only have hints and guesses. It is, of course, also foolish to reject those hints and guesses, if they are the best that we have at the present moment. One should take them at what they are worth, holding one's opinion tentatively, and striving neither to be blinded to new light by ancient prejudices, nor carried off of one's feet by the currents of contemporary thought, which may or may not happen to be setting in the direction of true progress.

If, again, the objector merely wishes to emphasize the fact that boys are not such machines as we place in position against the wall of a railway station, and to insist upon the truth that there is in our experience such a thing as the choice of ends and the adjustment of means to their attainment, no sensible man can have any quarrel with him for this. There can be no more serious error than to suppose that because all the changes which take place in a boy's body, and in its relations to other things, can be brought under the conception of mechanism, therefore, the boy must no longer be regarded as a boy, but rather as a bit of furniture. As well argue that because a boy is an animal we must look upon him as a flea. When things widely diverse are brought under the same general concept, it does not mean that the differences that distinguish them are obliterated. It is, therefore, of the utmost importance to remember that an extension of the concept of mechanism does not in the least wipe out the dis-

tinction between what are commonly recognized as machines, and living organisms. That distinction is a marked one, and one must be a slave to one's idea when one is misled into overlooking it. To call attention to the distinction, where there is danger that it may be forgotten, is a public service.

But if the objector does not intend to do either of the things mentioned just above, and does intend dogmatically to maintain that no extension of our knowledge of boy, dog, stick, and their material environment — not even the knowledge of which at present science dreams and which it recognizes as quite beyond its grasp — would reveal that the series of changes which have taken place are part of a mechanical order of things, he seems to arrogate to himself an authority to which he can lay no just claim. Were he in a position to show that the attainment of such and such ends could not be effected by a series of mechanical causes, his position would be a reasonable one. As he is only in a position to show that no one knows just how it can be, it does not appear very reasonable.

It does not seem, then, that we need be deterred from assuming, as a working hypothesis at least, that the universe of matter is a perfect mechanism, either by supposed difficulties connected with the concept of mechanism itself, or by the fact that science is not now in a position to prove the justice of all its guesses at the truth. But there is one objection which appears to have more weight. In our common experience of the world, it is an undeniable fact that there are such things as *minds*. It is as fair to ask what these are, and what is their true place in a reasonable scheme of the system of things, as it is to ask any of the questions touching the nature of matter with which the student of physical science occupies himself. For an answer to such questions one can no more turn directly to the crude and undigested experience of the plain man, than one can for an answer to questions concerning the nature of matter. Still, there is a way of approaching such questions. And if it be discovered that a given view of the physical universe is really incompatible with what seems, after critical examination, to be known about minds, it is an argument against that view not to be despised.

PART III

MIND AND MATTER

CHAPTER XVI

THE INSUFFICIENCY OF MATERIALISM

It must ever remain a matter of regret to those who are imbued with the scientific spirit, and who love clear thinking, that the works of Democritus were allowed to perish. When one has wearied one's wings by soaring in the empyrean with Plato; when one aches in every joint after an agonizing struggle with the Aristotelian conceptions of matter, form, moving cause, and final cause; one turns with a sigh of relief to the simpler and clearer teachings of the ancient materialism.

The system is easy to understand; its outlines are distinct and may readily be followed by the eye. It reveals itself to one frankly and openly, standing naked in the light of day, stripped of that veil of ambiguous words and unintelligible expressions with which philosophic systems are wont to drape themselves. It informs us that nothing exists save atoms and void space. These atoms differ from one another only in size, shape, and position. They have always been in motion. Their mutual collisions result in mechanical combinations from which are born world-systems, with their varied phenomena. Nothing comes from nothing; nothing becomes non-existent. The cosmic changes are but translocations of material particles, and this truth may be grasped by the reason, though the senses are too dull to furnish direct verification of it. The universe is a universe of matter in motion, a gigantic mechanism, the successive steps in whose development form a limitless chain of causes and effects in no ambiguous sense of those words. The whole of science is summed up in the comprehension of this order of causes.

That Democritus was an unblushing dogmatist, and cheerfully described in detail all sorts of things of which he could have no possible knowledge, seems sufficiently evident. There is a striking difference between the easy birth of the atomistic doctrine in ancient times, and the protracted labor which resulted in the atomic theory as we have it now. The old world was uncritical, and cheerfully optimistic as to what could be accomplished by speculative thought. The modern world is more cautious, and has a somewhat better realization of the magnitude of its task. Hence the ancient atomism can easily be criticised in detail; and yet its bitterest assailant cannot fail to see that it has grasped with marvellous clearness an idea in which men of science are more and more coming to rest, the idea of the world as a mechanism, the life-history of which is summed up in an unbroken chain of mechanical causes and effects. The teachings of Democritus, modernized in form and rendered a trifle less dogmatic, would not be found to be much out of harmony with what has been said in the preceding chapter touching the occurrences which take place in the material world.

I say expressly, touching the occurrences which take place in the material world, for that chapter has concerned itself only with matter and the motions of matter, ignoring the existence of anything beyond. The ancient materialism lays down for itself, it is true, the same limitations; but it undertakes, nevertheless, to say something about minds and their knowledge of things, a field of investigation which it can call its own, as we shall see, only as the result of an act of violence which rebaptizes the minds and ignores the existence of their knowledge altogether. Mind is composed of fine, round atoms, and is disseminated through the body. Atoms are discharged from external objects, pass through space to the organs of sense, and mechanically affect the mind; thus arises the knowledge of external things.

This doctrine, as it was later developed in detail by the Epicureans,[1] is highly ingenious and, to men at a certain stage of their reflective development, can scarcely fail to be attractive. It differs only in unessentials from the type of doctrine with which we frequently meet to-day, in men of science who have paid little attention to philosophical disciplines and are unacquainted with the history of speculative thought. They do not speak of mind-atoms,

[1] See Lucretius, "De Rerum Natura," III.

but there is much talk of the external stimulus, of the organ of sense, of the sensory tracts, of the central nervous system, of the motor reaction. There is also a tacit assumption that with an exhaustive investigation of all these, the whole field is covered.

Yet it is clear that both the ancient and the modern materialism simplify their task by dropping out of sight what is most obscure and elusive, and fixing their attention exclusively upon what is comparatively easy to grasp. If mind-atoms differ only in size or shape or mobility from other atoms, if they have their location in space, it is easy to conceive how they may be jarred into new motions by the impact of atoms cast off by surrounding objects. There is nothing hopelessly mysterious in the clash of material particles; we see something of the kind going on about us on a larger scale all the time. But if we are to be content with this view of the process of knowing, we must pass lightly over the very significant statement that "thus arises the knowledge of external things." Nothing exists save atoms and void space; under which of these heads shall we subsume this "knowledge"? or shall we, perhaps, make it identical with the motions of the atoms through the space? And if we drop the notion of mind-atoms, and confine ourselves to the study of nervous processes and those physical events in which they have their inception and in which they terminate, the case is the same. What becomes of those phenomena with which the psychologist supposes himself to be dealing? What becomes of sensations, memories, thought-processes? A whole world of things seems to be left wholly out of account, ignored as though it were non-existent. Shall we outrage common sense by insisting that these are but another name for the nervous processes themselves, and hence do not require independent investigation?

The absurdity of such a position can best be made clear by the use of an illustration. Let us suppose the boy, whose motions have been discussed in the preceding chapter, to be about to begin his attack upon the dog. As we have seen, boy and dog are certain collocations of material particles in certain space-relations to each other and to the rest of the material world. They are part of the mechanical system of things. Every motion of every particle is foreordained by the law of the whole, and could be foretold by one sufficiently well informed and sufficiently wise. To us, the spectators of the drama, the actors do not seem to be such swarms of minute elements, but Democritus could inform us that this is

because our senses are too weak to see them as they are. Suppose that by some miracle this hindrance were removed, and that boy and dog stood revealed to us in their atomistic nudity — infinitely complex, discontinuous, each a universe in which system could be traced within system, all developing their countless series of changes in harmony with mechanical laws. Could we see all this as it would be open to the eye of omniscience, the task of science, in so far as it is merely physical science, would be satisfactorily completed. Every change in every particle of matter and, hence, in every collocation of particles, would be accounted for. We should know perfectly why the boy hits the dog, and why the dog runs through his series of twistings and turnings. Puffed up with such knowledge we might feel inclined to despise the blind antipathy to Dr. Fell that remains incapable of justifying its existence by a reference to mechanical causes.

But while we are thus gazing upon the intimate structure of the boy and the dog, we become conscious of the fact that the closest acquaintance with the machine does not bring within our view certain things that we might have expected to find there. The boy sees the dog, and sees him to be yellow. He hears him bark. What are these sensations of color and sound? What have they to do with the mechanism? They are certainly not a part of it in any intelligible sense of the word. The machine and all its workings can be perfectly well understood without referring to them at all.

To our discriminating eye the vibrations in the luminiferous ether and the vibrations in that grosser medium, the air, lie open and are numbered. The mechanical changes, the translocations of atoms, which take place in the organ of sense — changes which an observer endowed with a vision less acute could only subsume under such concepts as chemical or "vital" — stand forth stripped of their mystery. The subsequent changes in the sensory nerves, the rearrangement of atoms and molecules in the central nervous system, the changes in the motor nerves and in the muscles, all these we follow step by step. The chain of mechanical causation is unbroken, and it is nowhere necessary to turn aside from the straight path upon which we are journeying. Nowhere do we find color or sound, or anything resembling color or sound. The more clearly one realizes just what is meant by the world as mechanism, the more clearly does one see that it is a world which has in it no

room for a vast number of things which are plainly to be found in our experience, and the existence of which can only be overlooked by one blinded by prepossession in favor of some philosophical theory.

Upon the crudely unreflective materialism which rather startled the world with the emphasis of its unmeaning utterances half a century ago it is scarcely necessary to comment to-day. The much-discussed statement that the brain secretes thought as the liver secretes bile needs no labored refutation. To such vision as we are supposing ourselves to possess, the mechanical structure and functioning of each organ would be plainly evident. The secreting organ and the secretion would in each case be perceived to be such and such collocations of matter, having an unequivocal existence in the material world of things, and no single atom or molecule in either would lack its definite place in the mechanism of the universe.

The globule of saliva is as much a part of the material world as is the salivary gland. The atoms which compose it have an existence as independent as the atoms which compose any other group, and they are equally indestructible. Their relations to the atoms in every other group are spatial, and all changes in these relations may be described as motions in space. The gland and the secretion may be separated and set at a distance from each other; this does not affect the existence of the secretion. The gland may be destroyed, that is, the collocation of material particles which passes by that name may be made to undergo great change; nevertheless the secretion may remain unaffected. The relative independence of gland and secretion, and the unmistakable material nature of the latter are thrust unpleasantly upon our attention by the numberless threats and admonitions which the constituted authorities in civilized countries have found it necessary to affix to the walls of waiting rooms in railway stations, to hang up in trains, and to bring to our notice in divers other places.

The ill-bred fellow who has been lounging in the corner of the railway carriage takes his salivary glands with him when he steps out of it; but he leaves behind an unwelcome reminder of his former presence, which persists in its independent being and asserts its right to a place in the world of matter. Can any thoughtful man seriously maintain that the color seen and the sound heard are related to the brain of the boy, who sees the dog,

in any way analogous to this? The man who sat in the corner might have occupied himself during his whole journey with thoughts of wholesale massacre; he might have called before his imagination the most hideous combinations of colors; he might have hummed over in his mind the most unmelodious of tunes; yet, on his exit, the place might have been taken contentedly by a timid man with artistic tastes. Of such things as these no trace remains, and no one expects to find a trace. Sounds, colors, and a whole world of other things that we may classify with these, are not collocations of matter which exist in space side by side with certain other collocations of matter which we call bodily organs. It is only mental confusion that can identify them with such.

Perhaps some one will be tempted to point out once more that the functioning of the brain does result in certain material products which can be traced by the physiologist. There is a destruction of tissue which must be made good by reconstruction. This is, of course, true. When the brain functions, there are waste products which pass into the blood and are ultimately eliminated from the body by other organs. But it should be noted that such products, when they are discovered, are not found to be in the least like those things which we have been discussing. They are not colors, they are not sounds, they are not memories of such. They are not to be identified with any of those things of which the man was conscious while his brain was functioning. The elements which compose them formed part of the man's body; they were jostled out of the combinations in which they stood; they were finally excreted. Of their existence during the whole process he has not had the faintest suspicion. For identifying them with the things of which he was conscious at the time there seems to be no excuse.

Thus this vain talk of "secretions" may be unhesitatingly set aside when we are considering such things as the color of the dog as seen by the boy, or the sound of his bark as heard. Even the Democritean slurring over of the existence of sensations and of that reason which can alone discern the truth about the atoms and their motions seems preferable to such gross misconception. Democritus recognized the existence of these things, but failed to find for them a place in his scheme of existence. The secretionist gives them a place in the system of things, but they cannot take that place without ceasing to be what they are.

He denies them their own proper nature and confounds them with something else.

It may be thought that it is an excess of zeal to spend even so much time as I have done in the criticism of this form of the materialistic doctrine. Why sally out in chase of the dodo, when that bird has disappeared from the face of the earth?

To this one may answer that *this* bird has not wholly disappeared, but that specimens may still occasionally be met with in out-of-the-way corners. My own experience has been that they are more apt to be found in the medical profession than elsewhere, perhaps because that profession embraces a vast number of men who have some acquaintance with physiology and psychology, but only a limited number of whom can be legitimately expected to be possessed of philosophical acumen and to be thoroughly equipped with accurate information upon matters physiological and psychological.

And one may answer, in the second place, that the secretionist's misconception is but one of a type, and it may serve to throw light upon a whole group of errors to analyze the most striking instance to be found in the group. A more insidious form of the misconception is often made to lurk in the statement that what is somewhat loosely called thought is a "function" or "activity" of the brain, a statement which may seem not unsatisfactory to one who is ready to turn a deaf ear to all mention of secretions. One is reminded here of the old Greek notion of the soul as a harmony of the body, which notion, as readers of Plato will remember, was sometimes taken with serious literalness and supposed to be fraught with grave significance.

But it is never wise to use a phrase without at least an attempt to determine with some accuracy what it really means. What are "functions" or "activities" of the brain? To such vision as we are supposing ourselves to possess, it is quite clear what the brain is. The dulness of our sense has been done away, and we see, as with the Democritean Reason, an army of atoms going through its evolutions with mechanical precision. It is not a mob, a mere rabble. We can trace in its infinite complexity relatively permanent groupings in the midst of incessant changes. Formation succeeds formation; the individual units group themselves, divide, scatter, and re-form into new groups. A patient observation of what takes place, and a comprehension

of the mechanical laws which govern the actions of each, enable us to predict what groupings will appear upon the scene when the present arrangement has filled its moment and dropped into the nothingness of things past.

These motions in matter, these groupings and regroupings of atoms, these are the functions or activities of the brain, in an unequivocal sense of the words. They are the only ones that display themselves before our eyes, and, as we have seen in the preceding chapter, they are the only ones needed by science to explain the whole series of positions taken, in the material world, by the body with which this brain is connected — in the instance above mentioned, the wild chase of the dog, the shouts of laughter, the wavings of the stick.

Shall we say that the color seen and the sound heard are also functions of the brain? And in this case shall we regard them as distinct and separate functions of a quite different kind, or shall we assume that they are identical with some of the motions which we see before us? Shall we say that this particular clash of atoms is the color yellow, and that one is a sound? If we assert that such as these are functions of a quite different kind from motions, we seem to be stretching a familiar word to the point of breaking. We ought to recognize that, when we call things quite different by the same name, we are not justified in putting them into the same class, and in assuming that the one has been assigned its place in nature when the other has. On the other hand, if we maintain that colors and sounds are identical with certain atomic motions, we seem to be talking nonsense. The atomic motions we can see plainly before us. As well call a triangle an emotion of grief as call this particular clash of atoms yellow. The atoms are not yellow and their motions certainly are not. If it is an error to confound a color or a sound with a material secretion, it is surely no less of an error to confound them with motions in matter.

As a matter of fact even those who elect to speak of thought as a function of the brain do not exactly identify colors and sounds as seen and heard with motions in the constituents of the brain. They do not conceive those motions to be colored or resonant. They accept their own phrase loosely, and when cross-questioned usually have something to say about double-faced entities, the outside and the inside of things, etc. With

these modifications of their doctrine we are not here concerned; what concerns us is the fact that any doctrine which maintains that science has to do only with matter in motion removes from the province of science many things which common sense and common experience insist upon as really existing. If science is to be thus circumscribed, then scientific knowledge carried to its extremest limit must wholly ignore much that we find in our experience, so much, indeed, that, were it dropped out altogether, we should not recognize our experience as our experience at all.

The more clearly one recognizes, therefore, just what is meant by the mechanism of nature, the more clearly one sees that there is no room in it for such things as color and sound as seen and heard. This world of mechanism is, indeed, the world of the primary qualities of matter dwelt upon by John Locke in his "Essay." From it all those elements of our experience which are sometimes loosely called the secondary qualities of matter are to be carefully excluded. Colors, sounds, odors, etc., are not, as Locke expressly states, qualities of matter at all, and he insists that they do not resemble them. That something in matter must correspond to them, he regards as self-evident, and this something he calls the secondary qualities of matter. But he defines these secondary qualities as powers which objects possess of arousing sensations in us by means of their primary qualities. Thus, in the world of matter, there is no real distinction between primary qualities and secondary. The secondary are seen to be nothing other than the primary — they are configurations of, or motions in, matter; those particular motions which we connect with, and too often confound with, the hearing of sounds or the seeing of colors. That such configurations and motions should not be confused with the sounds heard or the colors seen Locke saw clearly. He made the latter effects of the former, but he had better sense than to suppose the two classes of things to be identical.[1]

The modern man, who has had the advantage of reading what men have written since touching the nature of our conception of matter, ought to be in still less danger of falling into such confusions. The world of matter and motion is a world given in terms of touch and movement sensations. It is a vast system built up

[1] Book II, Chapter VIII.

out of elements which have been selected from our experience as a whole, but which by no means exhaust its rich diversity. It is a mere skeleton, a framework and nothing more. When it is recognized what the material world is in its ultimate constituents — I speak psychologically and not physically — it is impossible to think that nothing exists save matter and motion. This is seen to be tantamount to the assertion that color sensations are identical with sensations of quite another class, which is palpably absurd.[1] To regard as identical classes of experiences which are evidently dissimilar is inexcusable, and to dismiss as non-existent all classes of sensations except those which fit into a particular series, arbitrarily narrows the meaning of the word "existence" to a special use. Both in science and in common life we constantly speak of colors, sounds, and odors. We mean something when we do so. To declare such things to be non-existent is palpably contrary to common sense and to the accepted usages of speech.

Thus we see that it is impossible for reflection to rest content with the Democritean world of atoms and void space, and to ask no questions touching those other things which Democritus recognizes but to which he explicitly denies a place in the system of things. It is impossible to be satisfied with a mechanical theory of the universe, however carefully elaborated by modern science, which simply ignores a large part of our experience, and regards its task as completed when it has reduced to order the remainder. One is constantly reminded that something remains to be explained. In common life we hear little of the atomic structure of things, and much of the color, the odor, the taste, of the apple or the peach. We speak of our wine as white or red, as sweet or sour. A bruised finger aches, and all notion of mechanism is driven from our thought by its maddening pulsation. These things stand in the foreground of our experience; to overlook them seems absurd. To think of the world as composed exclusively of atoms in motion, one must banish the world, sit quietly in the dim light of one's study, glue one's eyes to the paper, and write oneself gradually into a frame of mind in which the abstractions of mechanics seem

[1] If any one chooses to distinguish between the material world "as given in terms of touch and movement sensation" and the real material world as it is, distinct from all sensation, it does not affect the question. It only emphasizes the absurdity of overlooking the existence of the "subjective." I must ask my reader to wait until he has read Chapter XXIII before coming to a final decision regarding my use of the word "sensation."

the only realities. The first tap at the door, the first note of the finch in the tree outside, may easily remind one that the world is really painted in colors, and is not a monotony of black and white.

It is the same when one talks with men of science, or reads an account of their experiments. We watch the chemist pour one colorless liquid into another. He has told us that the "resulting color" will be this or that, and his prediction seems to have been justified. The physiologist gives us a brief sketch of the anatomy of the eye and of the ear. He traces as well as he can their connections with the various parts of the brain. He then launches out into a far more extended discussion of sensations of color and sound — not brain-changes, but sensations of color and sound — as though such things really existed, were worthy of being discussed at prodigious length, and were not so cut off from molecular changes in the substance of the brain as to make it impossible to pass from the one to the other.

As for the psychologist, whatever may be his enthusiasm for mechanism, and however closely he may ally himself to the student of physical science, he simply cannot speak at all without reminding us that there are other things in heaven and earth than motions in matter, than the clash of the Democritean atoms. If we expunge from his pages all reference to what does not form part of the mechanism we have been discussing, we leave most of them as white as when they went into the hands of the printer. Even the headings of the chapters are gone, and the title of the volume has become an empty sound. There remain some descriptions of apparatus, and an outline of the anatomy and physiology of the nervous system, the latter a mere shadow of its usual self as we find it set forth in the works of the physiologists.

Very likely it will be objected that this devastation which is wrought in the sciences by insisting that they shall omit all reference to what cannot take its place in the world of matter and motion, has its origin in the fact that the sciences are as yet so imperfect.

A science which does not know the actual changes which are taking place in the mechanism of the universe, must, if it is to talk at all, be allowed to talk about something else. Yet he who thus speaks may be conscious of the fact that, did he know more, he might speak in quite another way. The pouring of one liquid into another is a mechanical change. The chemical combinations

which result may also be regarded as mechanical changes. Such changes, which, of course, do not lie open to direct inspection, may be assigned their place in the cosmic series of causes and effects. One may speak of the "resulting color" without seriously intending to maintain that the color seen has its place in the series. It may be taken as merely representative of what has such a place, as a convenient handle by which to take up an occurrence which cannot readily be laid hold of in some better way. It is permissible to refer to "Monsieur Chose," when we do not know the man's real name.

Similarly, our desolating ignorance of the intimate structure of the brain and of the changes which take place in it, may force the physiologist and the psychologist to talk of colors, sounds, odors, tastes, pleasures, pains, memory-images, concepts, and what not; but if they knew more of the mechanism of the human body, could they not describe all its activities without any reference to such things as these at all? Were science more advanced, could there not be a physiology, and even a psychology, that made no reference to such? Could not these sciences study man as a mechanism, and content themselves with the knowledge of all that this mechanism could possibly do? Certainly, if the mechanical view of the material universe is a true one, it is not permissible to follow the chain of mechanical causes a little way, abandon it at a certain point, and then return to it again, except as a last resort and a temporary expedient. One may deplore this expedient even while availing oneself of it.

To the objection that the chain of mechanical causes and effects could, at a more advanced stage of science, be rendered more evidently complete, one need not care to bring an answer. I have above merely wished to point out the fact that, in the present state of the sciences, it is especially inexcusable to overlook the existence of all save the Democritean atoms and their motions, since that existence is forced upon one's attention at every turn.

Nor is it without significance that it is possible, when we find the series of mechanical causes broken by our ignorance, to piece out its deficiencies by turning to something else. Certain things cannot be made to stand as representatives of certain others unless there be some true relation between the two classes.

The importance of this relation is sufficiently evident, for it is possible for the plain man to interpolate into his series of me-

chanical causes such things as sensations, which have no place in the above-described mechanical order, and yet to infer with a good deal of accuracy what occurrences will or will not find a place in the world of his experiences. It seems to him madness to deny that sensations and volitions can be the results and the causes of changes in the material world. The puncture caused by the mosquito gives rise to the sensation of itching, and this sensation leads to his scratching the spot attacked. The fall of the apple from the tree causes in him certain visual sensations, and these visual sensations are the cause of his desiring to possess the apple, which desire sets his body in motion and leads to the appropriation of the fruit. The descent of the hammer wounds his finger; this causes pain; the pain causes facial contortion and the insertion of the wounded member into his mouth. The fact that such chains of antecedents and consequents do present themselves within his experience, no man can with justice deny. He assumes them to be a series of causes and effects, and he regards it as unnecessary to isolate and set apart the merely material, even if the thought of doing so ever crosses his mind.

The man of science is apt to speak with rather more hesitation, even when he makes no deliberate attempt to view things with the eye of the philosopher. The chemist may talk of a "resultant color," and may even admit frankly that he thinks of color as an effect of physical causes, but we do not find him ready to admit that color can in any true sense be a cause of physical changes. The physiologist tells us that a common effect of the arrival at the central nervous system of impulses passing along afferent nerves is a change in consciousness, or a sensation.[1] He also tells us that choice may be determined in some cases by intelligence,[2] and that in an ordinary voluntary movement an intelligent consciousness is an essential element.[3] He assures us, on the other hand, that, looking at the matter from a purely physiological point of view, "the real difference between an automatic act and a voluntary act is that the chain of physiological events between the act and its physiological cause is in the one case short and simple, in the other long and complex."[4] Psychologists divide themselves into classes; the one class falling in with the opinion of the plain man, and the other regarding the series of mechanical causes as

[1] Foster, "Physiology," 6th ed., III, pp. 850, 851.
[2] *Ibid.*, p. 909. [3] *Ibid.*, p. 1068. [4] *Ibid.*, p. 1004.

unbroken. One cannot claim the authority of psychologists as a class for either doctrine. Finally, the logician tells us that it is the great aim of science to trace the relations of cause and effect which obtain in nature, but we remark the fact that he does not hesitate to illustrate the inductive methods of scientific research by a description of investigations into the "causes" of the iridescent colors on mother-of-pearl, or on thin plates and films.[1] We ask at once, Does the logician mean to maintain that colors have their place in the natural order of causes and effects? Can they be the result of mechanical causes? Logicians speak as though they could, and they treat them accordingly.

Of course, the adherent of the doctrine that the material world is a perfect mechanism will regard those whom I have above cited as in need of enlightenment. He will maintain that the opinions of the plain man must not be uncritically accepted as true; and will point out that one may be a pretty good chemist, physiologist, psychologist, or logician, without on that account being much of a philosopher. He will, moreover, call attention to the fact that, in special investigations of all sorts, it is permissible to use language in a way which is not strictly correct, provided that such a use of words serves our convenience and does not give rise to unavoidable misconception; and he will remind us that one may reason well without being fully conscious of the true significance of the terms employed in one's reasonings. Those who enjoy the clearest vision, he will insist, and who best understand the course of the development which science is undergoing, will be in the least danger of falling into the error of supposing that the cosmic mechanism really needs to be patched with such unsubstantial stuff as colors or odors, pleasures, pains, or memory-images.

But when he has said all this, he ought frankly to admit the significance of the fact, that such widespread error may exist without either in common life or in science revealing itself to be error by undeniably disastrous consequences. This can only mean that those things which he has set aside as finding no place in the cosmic mechanism are, after all, intimately related to that mechanism. Where our knowledge of the mechanism is defective, it may be more or less satisfactorily pieced out by their aid, as we have seen.

And it is quite clear that were our knowledge of the world of

[1] Jevons, "The Principles of Science," Chapter XIX, § 2.

matter and motion so complete as to make it quite unnecessary to borrow such patches, this would not in the least imply that the world of sounds, colors, tastes, odors, and all the rest, would cease to exist and to be related to the world of matter and motion. In certain special investigations it would, it is true, be unnecessary to refer to such things, whereas this reference is at present unavoidable. But to limit the sphere of science to such investigations seems absurd. It is surely not the whole duty of man to fix his attention upon the ordering of sensations of touch and movement into a satisfactory mechanical system, to the complete neglect of experiences of every other sort. That these other experiences do not defy all attempts at arrangement is sufficiently clear from what has been said above. It seems, then, as though it ought to be the task of science, in the broad sense of that word, to reduce the whole of our experience, and not merely a part of it, to some sort of system. Anything less results in the mutilation, not the explanation, of the world in which we live.

But how attain to such a view of the whole of our experiences as an interrelated system? Surely one may sympathize with the Democritean, and admit that he is driven to his position by encountering what seems a very real difficulty. Once admit that the material world is a perfect mechanism, and there appears to be no bridge by which one can pass from it to another world and back again. To the plain man the difficulty does not exist, for his real world is a composite thing in which material and non-material elements are patched together to form what cannot exactly be called a mechanism, and yet resembles one in spots. To the nature of the connections between its different and discrepant elements he has given little thought; that they are somehow connected is enough for him.

But he who desires to think clearly can scarcely rest content with a conception which seems to remain satisfactory only so long as it remains vague and obscure. He asks how he is to conceive this connection of the material and the non-material, and what is meant by their interaction. The more he thinks about the thing, the more it seems to him impossible that motions in matter should have as their causes anything save motions in matter. And yet, if this be so, what shall one do with colors, sounds, odors, and the rest? What shall one do with the subjective, with *mind?* Has it a place in the system of things, or has it not? As the "system

of things" is pretty sure to mean, to one who has busied oneself chiefly with physical science, the cosmic mechanism, an exclusion from the latter may seem almost tantamount to a denial of existence.

Such a denial is manifestly unjustifiable, and can scarcely be made by a man with open eyes; but one may glide over the subject lightly, as the atomists appear to have done, and discourse chiefly of the material. Or one may half face the question, and justify one's exclusive occupation with the material by the assertion that thought is a bodily secretion, an assertion which we have seen to be a foolish one, and one which testifies rather to a man's respect for the mechanical order of things than to his powers of reflection. Finally, one may regard mental phenomena as the "inside" of molecular change, or call matter a "double-faced" entity, thus seeming to connect things of divers kinds which do not seem capable of being built, strictly speaking, into the one system.

Just how much one may mean to say, when one uses such expressions, must depend upon one's clearness of vision. They may only indicate a vague recognition of the existence of the world ignored by the Democritean, coupled with the desire to incorporate it somewhat equivocally in the world of matter in motion. They may, on the other hand, mean more, and they deserve careful analysis. But the mere fact that one is tempted to use them is a sufficient indication of a recognition of the futility of attempting to limit the sphere of science to a description of the changes which take place in the material universe. It is an admission that something exists save matter and motion, and a doctrine that makes this admission has advanced beyond the standpoint of pure materialism.

It may, it is true, remain materialistic in feeling, and the amount of attention it bestows upon the subjective elements of experience may be quite inadequate. Still, it should be given credit for a truth which it sees but dimly. If it sees it at all, it cannot conscientiously object to the most strenuous efforts to throw light upon this dark corner in human knowledge. It cannot, in other words, frown upon the labors of the metaphysician, unless this worthy makes it quite plain that he assumes his premises without proper precautions, uses words and phrases without having carefully looked into their significance, draws conclusions without clearly recognizing what constitutes proof, or does any of those

things that have so frequently made the word "metaphysician" stink in the nostrils of the prudent and the practical man.

His task is not an imaginary one. It is set for him by the nature of our experience. Even Democritus unconsciously incites him to set about its accomplishment, in that he delivers into his hands certain things which unquestionably exist, in some sense of that word, and yet for which no place is provided in the world of existing things.

CHAPTER XVII

THE ATOMIC SELF

Science has long been at work building up the conception of the material world as a mechanical system of things. Many hands have labored to rear the edifice, many still labor, and yet the pile has scarcely risen above its foundations. Only the eye of faith can see its towers and pinnacles rising in stately magnificence and dwell with pleasure upon the unity and harmony of the colossal structure. Those who are most deeply imbued with the spirit of science, and who enjoy that breadth of vision denied to the myopic eye of the mere specialist, are apt to exercise this faith and to see the world as a perfect mechanism, while frankly admitting that it is quite beyond the power of science to prove it to be such. On the other hand, there are those, and among them men of great scientific eminence, who do not believe that this faith rests upon a sure foundation. The world of matter, they maintain, will not be proved to be a perfect mechanism, because it is not such.

But, whatever view we may take of the world of matter, however independent we may conceive it to be, we are nevertheless forced to recognize the existence of a realm of minds. The man who insists that nothing exists save matter is foolish — about as foolish as the man who insists that nothing exists save mind. The plain man stands between the two and finds himself in a composite world in which things material and things mental play their proper rôle without crowding each other out of existence. That the chair upon which he sits, the table at which he writes, the pen which he holds, are material things, it seems to him trivial to doubt. That there is such a thing as mechanism he can prove by pulling out his watch. On the other hand, it is *he* that pulled out the watch, a thing that can feel, think, remember, will — in short, a mind. And he cannot conceive any man in his senses to come seriously to the conclusion that he alone possesses a mind.

That he is right in maintaining the distinction between matter and mind and in holding to the existence of both, careful analysis will only succeed in making more certain. The philosopher who denies his position may see some truth that he does not see, but his denial rests upon an imperfect apprehension of the truth. We have on our hands a world of matter and a realm of minds; neither can be declared non-existent; the only question is, What shall we do with the two? I have said that, to the plain man, the difficulty does not appear to be a serious one, because he builds the two into one system, or, at least, into something resembling a system. He treats minds very much as if they were material atoms and could influence the latter as these influence each other. But to the man who has come to look upon the material world as a perfect mechanism the problem is a far more serious one, for such a conception of the interaction of mind and matter as the above seems to make havoc of the notion of mechanism.

So serious is the difficulty that some of those whose acuteness and whose learning are undisputed have come back from a study of what many philosophers have had to say touching the problem, with a disposition to rest content with the position of the plain man as being, on the whole, the most satisfactory. The plain man appears to give a plain answer to the question, and one not out of harmony with our common experience of things. Why not accept it and let it go at that? The position seems by no means an unreasonable one, at first sight, at least. If, in taking it, one is compelled to deny the assertion of certain persons that the material world is a perfect mechanism, it is easy to point out that these persons can give no adequate proof of their assertion and to hold that they may very well be in the wrong.

But it is evidently unwise to adopt a position without making a careful examination into all that that implies. It is quite possible that such an examination will reveal that one has passed from bad to worse in abandoning philosophy for common sense. Of course, one cannot expect the plain man to realize clearly all that his doctrine implies. We must, hence, try to make clear to ourselves what he does believe, and then judge whether such beliefs with their implications are what we should elect to adopt as a satisfactory solution of the problem of the relation between matter and mind.

Here I should premise, in the first place, that I lay myself open to easy criticism in trying to make clear what is in its nature vague and fluctuating. A man may hold a thing in mind so dimly and vaguely that he may fail to recognize any clear thought whatever as the thing he had in mind, and may resent having it attributed to him as his own. Moreover, the plain man is not one, but many, and although he may, for certain purposes, be taken generically, he presents specific differences which are not without their significance.

I should premise, in the second place, that by the plain man I do not mean the *very* plain man, but the man who has some opinions, at least, on the subject of mind and matter. It must be admitted that he has not gathered his opinions independently from his own experience. Such opinions never are gathered independently. They exude from old philosophies; they are absorbed into theological and ethical systems; they leave their traces upon language and literature; they are taken up again, worked over, and incorporated into text-books for the instruction of young men; they become a part of the common thought of the race, and in the mind of every man of a moderate degree of culture they find a lodgment as part of that heritage from the past which he has accepted as he has accepted his social prejudices and his elementary notions of rights and duties. It may seem to a man that he has direct evidence in his own experience that such opinions are true. He should remember that it also seems to him that he has direct evidence that he does his thinking with his head, and not with some other part of his body. Yet it took the race a long time to discover the true significance of the brain in the animal economy, and many generations of men lived and died without being impressed with this direct evidence at all.

We may, hence, regard the opinions of the plain man on such subjects as the echoes of past philosophies; echoes which he takes for the voice of truth, and which seem to him to be just interpretations of what is given in his experience. If we go back to these philosophies, we shall often find labored attempts to make reasonably clear what he is content to leave wholly vague. It may, consequently, be objected that any attempt to state clearly the opinions of the plain man on the subject of mind and matter and their relation to each other must result in setting these opinions aside and treating, instead, of those philosophical doctrines in which they have had their origin.

The objection is not without force, and yet it is difficult to see how one can make clear what a man believes dimly and vaguely in any other way than by setting forth what his words would mean to him did he see things under a light less dim and uncertain, or what they have meant to others more given to the habit of reflection. It is not worth while to discuss a man's opinions, if it is understood from the outset that the discussion must leave the whole subject as vague as it was before. If any plain man feels aggrieved at my attributing to him doctrines which he is not conscious of holding, I beg him to assume that my words have reference to another and not to him individually. An experience, extending over a considerable number of years, with successive classes of college students representing, on the whole, the more cultivated classes in the community, has confirmed me in the opinion that there are certain philosophical tenets touching the nature of the mind held with a good deal of unanimity even by those who have done no reading in the works of the philosophers, and have no idea of the original sources of the doctrines to which they hold. They are comprehended vaguely; those who maintain them are often thrown into confusion by the first objection urged against any or all of them; but they are nevertheless held to with a good deal of tenacity. These tenets I take the liberty of calling a part of the philosophy of the plain man. Under this heading I include the following beliefs: —

1. That the mind is in some sense in the body.
2. That it acts and reacts with matter.
3. That it is a substance with attributes.
4. That it is non-extended and immaterial.

In these statements there is nothing that strikes the average man as absurd or incredible. Taken together they describe what may fairly be called *the atomic self*, that is, the self or mind vaguely conceived after the analogy of a material atom. It is true that the thing is expressly affirmed to be immaterial, but that only means that the analogy is recognized to be somewhat imperfect.

But one's satisfaction with such statements as these can only endure so long as one does not subject them to careful scrutiny and ask after their precise meaning. In what sense can the mind be regarded as in the body? and what is intended by the statement that it acts and reacts with matter?

Let us ask the plain man to look at the boy chasing the dog,

whom I have discussed in an earlier chapter,[1] with the sharpness of vision there supposed possible. What does he see? He sees an enormously complicated system of material atoms changing their space-relations to each other unceasingly, and in such changes obeying mechanical laws. The whole system of atoms constitutes what we call the boy's body. Each atom is plainly and unequivocally *in* the body, for it is clearly a member of the group, and stands in such and such space-relations to the other members. The word "in" has no doubtful meaning when one is speaking of material things. My papers are *in* my desk, that is, they occupy certain definite portions of space, and the wood which composes the desk occupies certain other portions on this side and on that. My body is *in* this room, that is, it occupies a position between the walls, can by moving in this direction touch one of them, and by moving in that touch another. An analysis of the conceptions of matter and of space reveals that when we speak of a thing as being here or there we are simply assigning to a given group of tactual sensations its position in the vast system of tactual and movement sensations which constitutes the real world in space and time.[2] If I choose to locate a mathematical point in this room, I treat the point as I would treat an atom, and I believe that a line might be drawn from one wall through the point in question to another wall. It seems, then, that to be anywhere, in an intelligible sense of the word, a thing must be material. It must form a part of the material system of things, and this it cannot do without being itself material.

Now does any one suppose that any degree of acuteness in vision would reveal the mind to be in the boy's body as an atom of matter is in it? Such a supposition seems to be quite excluded by the statement that the mind is immaterial. In what sense, then, can the mind be in the body? A careful examination of the plain man's opinion upon this subject reveals the fact that he really does assign to the mind, dimly and vaguely, an atomic "in"-ness, while refusing to accept all that this implies — perhaps, even, while holding to what flatly contradicts this.

The doctrine that the mind is in the body is venerable with age. At first it was a mind that was very unequivocally *in;* it was com-

[1] Chapter XV.

[2] This use of the word "sensation" is subject to the criticisms contained in Chapter XXIII.

posed of fine round atoms, highly movable atoms, etc. It could be inhaled and exhaled, and might escape through a gaping wound, as wine spouts through the rent wine-skin. It was a kind of matter and nothing more, having the same right to occupy space that has any other form of matter. Afterward it was for centuries still *in* the body, but in a much more indefinite and inconsistent fashion. It was wholly in the whole body, and wholly in every part.

This scholastic doctrine I have criticised earlier,[1] and it is not necessary for me to dilate upon it here further than to say that, to have this collocation of words mean anything to him, a man must think vaguely of "in"-ness, in the proper sense of the word, and must keep what he has in mind very vague. He must think of an immaterial atom, which by virtue of its being an atom can be somewhere, and by virtue of its immateriality can be nowhere in particular, but rather everywhere in general. It is an echo of this doctrine that comes before us as the opinion of the plain man, although he has never heard the words *tota in toto*, and may be shocked by their meaning as explained to him. He thinks of the mind as in the body, much as a material atom is in the body, and yet he does not think that it would be open to direct inspection, however acute one's power of vision. He hesitates to localize it very definitely, and would be unwilling to speak of it as exactly at the middle of the straight line joining this atom and that. He shakes his head over the suggestion that, if the mind really is in the body, a line might conceivably be drawn through two different brains in such a way as to pass through two different minds, whose distance apart might, thus, be accurately determined.

But it may be urged that, however indefinite the plain man's ideas may be, it is scarcely fair to foist upon him the scholastic doctrine of the ubiquity of the mind in the body. The objection is perhaps just, for that doctrine is not completely represented in the echoes of it which come back to us from most men's minds. Yet it should not be forgotten that the more completely one eliminates from one's thought the notion of this absurd ubiquity, and the more earnestly one strives to make the presence of the mind in the body a comprehensible thing, the more plain does it become that what one has in mind is an atomic self, a minute material self, which is present in the body as any material atom is present in a

[1] Chapter V.

group of such atoms. We can see this well illustrated in the case of Descartes, whose acquaintance with the mechanism of the body led him to attempt an emendation of the scholastic doctrine. He did not deny the ubiquity of the mind, for he was willing to assert, in accordance with the orthodox tradition, that it was united to all the parts of the body "conjointement." Nevertheless, he assigned to the mind a "siège principale" in the little pineal gland in the middle of the brain. Listen to what he has to say touching its behavior in this its inner sanctum: —

"Let us here, then, conceive of the soul as having her chief seat in the little gland which is in the middle of the brain, whence she radiates to all the rest of the body by means of the spirits, the nerves, and even the blood, which, participating in the impressions of the spirits, can carry them through the arteries to all the members. And let us remember what has been said above of the mechanism of the body, to wit, that the little threads of our nerves are so distributed to all its parts, that, on occasion of divers movements excited in those parts by the objects of sense, they open in divers ways the pores of the brain, which brings it about that the animal spirits contained in these cavities enter in different ways into the muscles, by means of which they can move the members in all the different ways in which they are capable of being moved; and also that all other causes, that can move the spirits diversely, can conduct them to divers muscles. Let us add, too, that the little gland which is the chief seat of the soul is so suspended between the cavities that contain these spirits, that it can be moved by them in as many different ways as there are different sensible qualities in the objects; yet that it can also be moved in different ways by the soul, whose nature is such that it receives as many different impressions, *i.e.* has as many different perceptions, as there are different movements in this gland. The mechanism of the body is so constructed that, simply from the fact that this gland is moved in divers ways by the soul, or by whatever cause may be, it pushes the spirits which surround it toward the pores of the brain, which conduct them by the nerves to the muscles, and thus makes them move the members." [1]

"Thus, when the soul wills to call anything to remembrance, this volition brings it about that the gland, inclining itself suc-

[1] "Les Passions de l'Âme," Art. 34. The "spirits" here referred to are, of course, the "animal spirits," and nothing immaterial.

cessively in different directions, pushes the spirits toward divers parts of the brain, until they find the part which has the traces that the object which one wishes to recollect has left there. For these traces are nothing except that the pores of the brain, through which the spirits have formerly taken their course because of the presence of the object, have acquired thereby a greater facility than the others of being opened again in the same way by the spirits which return to them. Thus these spirits meeting these pores enter more easily into them than into the others, by which means they excite a peculiar movement in the gland, which represents to the soul the same object and makes it conscious that it is the one it wishes to recollect." [1]

Can anything be more clearly material than this little mind that sits in the pineal gland? It has its definite place among other material things; it appears to be able to push and be pushed like the veriest bit of matter. Its presence in the body does not seem at all incomprehensible, for it does not appear to be in any wise different from the presence of a pen between a man's fingers, or the presence of a human body in a room. If one goes on to say that the mind is wholly without extension, is immaterial, and the like, one's thought becomes once more somewhat confused, for one is affirming material presence and in the same breath denying that the thing present is really material. But if one's thought is sufficiently vague, the contradiction is not unpleasantly apparent, and may conveniently be overlooked. The scholastic doctrine tries to make too clear what is meant by *immaterial* presence; it stirs up the contradiction and makes it growl, striking fear to the heart of the beholder. Descartes, in his doctrine of the soul's seat, emphasized the *presence*, and passed over the difficulty about its being immaterial. It goes without saying that if one emphasizes *both* sides of the inconsistent doctrine, and makes both clear, the result cannot but be disconcerting — except to the chosen few who have embraced a philosophy of contradictions, and rejoice in the absurdity of the conclusions to which their reasonings conduct them.

That the attempt to make at all clear the nature of the presence of the mind in the body reveals that what is really at the heart of the plain man's thought is a material presence, may be equally well illustrated by taking a modern instance. No one

[1] "Les Passions de l'Âme," Art. 42.

kept closer to the philosophy of the plain man than the late Dr. McCosh. His works have appealed to a very large number of cultivated persons, not specialists in philosophy, as embodying the most sensible opinions, and the most reasonably conservative, on many subjects with which the philosopher deals. He has never been accused of being a materialist, and he certainly never meant to lend his countenance to those who incline to this type of thought. Yet when he comes to speak of mind and body, and makes the effort to be a little explicit, he is capable of writing as follows: —

"The mind is so constituted as to attain a knowledge of body or of material objects. It may be difficult to ascertain the exact point or surface at which the mind and body come together and influence each other, in particular, how far into the body (Descartes without proof thought it to be in the pineal gland), but it is certain that when they do meet mind knows body as having its essential properties of extension and resisting energy." [1]

Here we find the scholastic ubiquity stripped away. The mind is not in the body "in general," but is located at some unknown distance within the skin. It can *meet* matter; it can *come together* with it, possibly at a point, possibly at a surface. Must it not be a material mind that can act thus? In contemplating the boy's brain as a swarm of atoms, we can at least conceive any two of them as meeting each other. They can lie side by side in space, with no room between them. They can *touch* each other. Whether atoms do actually ever touch each other is not a question with which we need concern ourselves here. We can conceive that they do, and we can use the expressions "come together" and "meet" in a perfectly intelligible sense. But suppose one of the atoms to be immaterial, that is, suppose it not to be an atom, a thing that can be touched. What can we mean by a *meeting* between a thing that can be touched and a thing that cannot? They can certainly not touch each other, and if not that, what do they do? It is perfectly evident that, in so far as Dr. McCosh's conception seems to the reader satisfactory, it is because he has emphasized the presence of the mind in the usual sense of the word "presence," and has passed over the difficulties which arise out of the attempt to combine with this the notion of immateriality.

[1] "First and Fundamental Truths," N.Y., 1889, Part II, Book I, Chapter II.

And if, when one emphasizes the notion of immateriality, that of the presence of the mind fades out into utter indefiniteness, what becomes of the conception of interaction? We can conceive of a new atom being brought into the group of atoms which constitute a human body, and of its interacting with them. This means that it and the others approach to or recede from each other in ways that can be explained by a reference to mechanical laws. Interaction in this sense seems out of the question where one is no longer dealing with material things.

But in what sense, then, can we speak of the interaction of mind and body? It is easy to say that when the mind wills, such and such changes take place in the material world; but to say this is simply to go back to the common experience that there is such a thing as volition, and that this is in some way related to the changes that take place in the world of material things. This experience no one cares to deny. It is admitted as frankly by those who regard the world of matter as a perfect mechanism, as it is by the interactionist. From this experience to the doctrine of the atomic self in the pineal gland or elsewhere is a very long step, and one never made by the plain man independently. When he makes it, he has passed from experience to philosophical theory, and it is perfectly just that this philosophical theory should be expected to stand or fall according as it succeeds in explaining or fails to explain the experience which it undertakes to make comprehensible.

It is, then, right that we should ask how this atomic self is to be conceived as setting in motion material atoms. What is its volition? Shall we think of it as a motion? If we do, we are back again within the realm of matter. Shall we deny it to be a motion, and hold that it is a peculiar and indescribable occurrence which takes place *within* the self, and wholly within the self? Then how shall we conceive this change within an immaterial atom to bring about motions in material atoms? The immaterial atom is not spatially present, in any intelligible sense of those words; the change which has taken place is wholly within it; and yet it is to be regarded as the cause of motions in matter. If this does not strike the plain man as a serious difficulty, it is because he sees so dimly that he is unable to recognize a difficulty when he meets one.

But to those who have given the subject careful thought, the

difficulty of patching up a mechanism with immaterial cogs and couplings has seemed an enormous one. Descartes appeared to have made reasonably comprehensible the interaction of mind and body when he placed the former in the pineal gland, where it could, so to speak, hold in its hand all the strings of the machine. On the other hand, Descartes had declared the mind to be non-extended, and had made its essence to consist in thought. How could such an entity be conceived to possess a hand material enough to hold material strings at all? This problem had to be faced by Descartes' successors, and, the notion of immateriality winning the day over that of material presence, they felt compelled to deny that it could hold the strings. The mind wills, said one, but it cannot, thereby, directly affect matter; on occasion of its volition, God brings about changes in material things. The mind perceives things, said another, but not by virtue of their directly affecting it; it sees things in God. The difficulty is as great now as it ever was, and if the plain man is not driven to such extremes by the inconsistency of his doctrine, it is, as I have said, because he does not greatly emphasize the notion of immateriality. His explanation of the interaction of mind and matter can only seem to him an explanation in so far as his thinking is materialistic. No man would attempt to fill in a gap in a series of colors by the insertion of a smell clearly recognized to be such. But a man might talk of completing his color-series in this abnormal way, if he dimly conceived of a smell as being some kind of a color.

It is, hence, sufficiently clear that it is easy to conceive this immaterial atom as present in and interactive with the body, only so long as one dimly thinks of it as material. When one is careful to eliminate from one's thought every suggestion of the material, all positive content seems to vanish.

Nor is there a difficulty only with the conceptions of presence and interaction. If it is true that it is hard to conceive of the atomic self as having a rôle to play in the management of the bodily mechanism, it is no less true that it is hard to frame any idea, which shall have even an approach to clearness, of the nature of this immaterial entity and its relation to its ideas.

We are told that it is an immaterial substance and that it possesses attributes. But what, in general, is a substance, and what is its relation to its attributes? If we search curiously into this obscure notion, we are carried back many centuries in the

history of philosophy, and we realize that the opinions of the plain man have their roots in a remote antiquity. We see that it has seemed to many generations of thinking men too evident to require proof, that each thing must consist of a substance with its qualities or attributes. The qualities are color, form, hardness, taste, smell, and the like, in the case of certain things, and thinking, remembering, willing, and the like, in the case of others. The substance is of a more retiring nature, and does not present itself to direct inspection. Nevertheless, it is there, and it is indispensable. It is *substance*, *substratum*, that which underlies the qualities, that which *has* them. It exists in itself — *per se subsistit* — and they exist in it as dependent existences.

If one will imagine a pin-cushion stripped of those qualities by which we commonly recognize it to be a pin-cushion, its extension, its hardness, its weight, its color, etc., and if we will permit it to retain only the property of holding the pins which are stuck (?!) into it, we shall have something that at least suggests the substance which busied philosophers all through the Middle Ages, and busies a number of them even at the present time. It has survived some very serious shocks in its day. When Descartes made a feint of sweeping aside all the philosophical prejudices which had come down to him from the past, he was unable to rid himself of this notion. He made the essence of matter to consist in extension, and the essence of mind to consist in thought, but these essences are not in themselves complete and independent. They drag with them as their shadow the substance or substratum which the "natural light" (a euphemism for inveterate prejudice) convinced Descartes must accompany every quality or attribute.[1] The substances thus brought in play no part in the Cartesian philosophy; throughout the whole four acts they remain behind the scenes. Still they are assumed to be present, and to be in some obscure way indispensable to the drama.

One of the most serious attacks ever made upon this ghostly pin-cushion was made by one of its friends. When John Locke undertook to make clear the distinction between ideas, qualities of things, and substance, he did the last of these a great disservice. He made it too clear that, when one has carefully distinguished between qualities and substance and has set all qualities of whatever sort on the one side and naked substance on

[1] "Principia Philosophiæ," I, ii.

the other, the nakedness of the thing is so complete as to resemble the emptiness of a vacuum. One is tempted to ask whether one has anything left at all. We have no idea what substance is, said Locke; we have only an indefinite notion of what it does. It is a "we know not what," and its function is to hold together the bundle of qualities which constitute the things we do know. The idea could not have been gained from any experience whatever, and its existence cannot be logically defended.[1]

Surely an entity at such a pass has no excuse for existing; we do not know what it is; we have not the faintest idea how it can do what it is supposed to do; the fact of its existence has been assumed without apparent justification. It appears to be made out of whole cloth, if so mere a nothing can be said to be made out of cloth at all, and did it possess a particle of self-respect it would expire and be done with. Curiously enough, it does not expire even in the pages of Locke, which contain poison enough to make away with a dozen such; and it is not surprising that it lurks in the obscurer corners of the mind of the plain man, who may quite fail to see that it is living on through sheer effrontery and in spite of the fact that it has logically died and been buried.

The interesting question is, Why does it live on? Why does it seem worth while for men to insist upon the existence of so mere a nonentity? This question we can answer by pointing out that this nonentity is a vampire which draws from the qualities, with the sum total of which it is supposed to be contrasted, the few drops of blood which nourish its equivocal being.

John Stuart Mill, in his remarkable chapter on "The Psychological Theory of the Primary Qualities of Matter," has insisted that, when we speak of material substance, we really have in mind the touch-qualities of a thing, qualities which, taken together, form, as it were, an inner nucleus, to which we refer all the other qualities.[2] His analysis is quite in the line of modern psychological investigations, which recognize that the real world in space and time is a world revealed in terms of touch-movement sensations. But Mill might profitably have brought out more clearly the fact that, when we distinguish between a *thing* and its qualities, the *thing* is not clearly recognized by us to be composed of qualities of any sort. It is indefinitely thought of as the possibility of all the

[1] "Essay," Book I, Chapter IV, § 18; Book II, Chapter XXIII, § 4.

[2] "An Examination of Sir William Hamilton's Philosophy," Chapter XIII.

qualities, the centre from which they emanate, the bond of union between them. It is the group as a group contrasted with the individuals which compose it. Manifestly, if we carefully put all the individuals aside, the group disappears and we are left without a residue.

This is what Locke did and he left himself empty-handed. But in so far as Locke still believed in substance, and indefinitely thought of it as a real existence, he did what is done by the plain man, he made an imperfect abstraction, leaving enough of the qualitative to prevent his substance from becoming a mere nothing. He was, of course, inconsistent, but inconsistency comes to be regarded as almost a prerogative of the philosopher by those who read much in the history of philosophy. Material substance remained to Locke enough of a touch-thing to be in this place or that, to be moved about. He thought of it vaguely as one thinks of things that can be touched, and there certainly was dimly present to his mind the core of tactual qualities upon which Mill dwells and which he himself in his moments of clearer thought set over against substance as something to be contrasted with it.

With the useful distinction between substance and qualities I have no quarrel. I wish merely to point out that it is very easy to misconceive the significance of the distinction and to suppose that the substance is a something that can be set over against the qualities in their totality. It is a little as though one distinguished between the river and all the water that ever flows in the river. And when one falls into the error of treating substance in this way, it is clear that one gains an indefinite meaning for what would otherwise be an empty word, by borrowing something from the bundle of qualities with which the substance is contrasted. When the plain man distinguishes between the table and the qualities of the table, his words undoubtedly mean something to him. The table as substance is not to be accepted as a mysterious and unanalyzable datum in his experience. It is perfectly possible to analyze the conception, and to show what elements are present in his thought. There is present in a vague and shadowy way that core of touch-qualities emphasized by Mill, and this is present even when he insists that he is not thinking of qualities at all. Were it not present, he would not treat substance as he does, giving it a local habitation, and thinking of it as *in* things.

That this is in his thought when he talks of material substance,

and that this content accounts for the satisfaction with which he comes back to a conception which would otherwise be to him a meaningless abstraction, is sufficiently clear. But what has been said above about the general tendency to give the atomic self a materialistic presence in the body makes it also evident that this is present in his thought even when he is talking about a substance which he assumes to be immaterial. Surely this is illegitimate in the highest degree. An immaterial self must not be represented in our minds by any group of touch-qualities, however indefinite. How, then, shall we think it?

The problem is a very serious one indeed. How important a part the touch-movement sensations play in a man's notion of material substance, he can make clear to himself by trying consistently to carry out the Lockian abstraction. Here is this table: it is colored, hard, extended. One may think of these qualities as inhering in a substance. Now abstract in thought the color. The table seems to remain; it is a table in the dark. But abstract every degree of hardness, and all extension. The table seems to disappear completely. Yet the hardness and the extension are assumed to be qualities, and distinct from the substance which underlies them. Nevertheless, in their absence, the substance evaporates. Is the substance in itself extended? or is extension only one of its qualities? If it is not in itself extended, how can it "hold together" this whole expanse of table-top? How can it be, in any intelligible sense of the word, a *substratum?* One cannot spread a non-extended entity under an expanse of anything, and if it is not necessary for the substance to be spread under the qualities in any sense at all, why may not the substance of that door support the qualities of this table as well as the qualities of that door? One who travels this road may easily reach the point of maintaining that there is only one substance, and this is next door to maintaining that there is no substance at all, at least in any sense of the word at all analogous to that in which it has been used in the preceding discussion.

Now when a man talks of an immaterial substance he almost forces himself to a Lockian thoroughness of abstraction in his treatment of substance. The dim core of touch-qualities which has inconsistently remained in his thought and has prevented him from groping in mere emptiness is threatened with total extinction. How is he to think even dimly of this immaterial substance? He

feels impelled to assert, in accordance with the ancient tradition, that it is simple and non-extended. But these negative determinations are just the knife that should cut him off from the vague materialistic content that gives its meaning to his conception of substance.

His only recourse is to retain at all hazards a little meaning, and allow his thought to grow still dimmer than it was before. If his material substance was the shade of a group of material qualities, his mental substance, the atomic self, is the shade of a shade. So dim is it and so unreal, that he has not the least expectation of attaining to any clear ideas regarding it, and he may even resent the attempt to set it in a sharper light. His notions of it and its ideas and activities are a mere mess of inconsistencies and incomprehensibilities, and with this mess he is content because he does not believe that consistency and clearness can justly be looked for in this corner of the realm of human knowledge.

When, therefore, one talks of abandoning the speculations of the philosophers and of coming back to the more sober conceptions of the plain man, it is right that we should ask him to open his eyes and see to what he is coming back. He is not coming back to experience, *i.e.* to uninterpreted experience. He is abandoning certain speculations for certain others, which, by no means satisfactory in themselves, yet seem satisfactory to a large number of persons, because they are matter of tradition and have come to fit their habits of thought as an old shoe fits the foot.

That there is nothing even moderately clear in this doctrine is written all over its face. We have seen that when we ask what the atomic immaterialistic self is and how we are to conceive it, no answer is forthcoming. It appears to be a shadow of a materialistic shadow. When we ask how it can be present in the body, it becomes evident that, in so far as it is thought of as present, it is thought of as material. Manifestly we must not think of it as material. When we ask how it interacts with matter, no one even pretends to give us information.

If, now, we turn in desperation to inquire at least how we are to conceive its relation to its own ideas, we fare no better. What do we mean when we say that it *has* ideas? May we regard the ideas as minute pictures that exist in or on the surface of this substance? A good many intelligent persons can be brought to confess, by means of a little questioning, that they are apt to represent the

thing to themselves in this way. But a moment's reflection makes it apparent that this will not serve even to give a hint of the relation which must be conceived to obtain between the atomic self and its ideas.

That which is perfectly simple and non-extended cannot have an inside and an outside, and it is not conceivable that anything should be either in it or on it, in any intelligible sense of those words. Moreover, the ideas themselves do not appear to be simple. If I close my eyes and call up in imagination a barber's pole, it seems to stand before me as an extended thing in which white lies beside red and red beside white. Does it mean anything whatever to talk of this composite something as either *in* or *on* a non-extended and simple substance?

To be sure, I may maintain that the imaginary barber's pole only *seems* to be extended, and is not really extended at all; but if I do this I fall headlong into a difficulty quite as grave as the one I am seeking to avoid. How can that which is quite simple and non-extended seem to have part out of part? Has it really no parts at all? Am I fed with pure illusion, and is the white not really different and distinct from the red and the red from the white? One may diminish the size of a thing and yet retain certain characteristics which make it possible to distinguish it as a thing of a given class. A small picture of a horse and a large one may both be recognized to be pictures of a horse. But if we annihilate altogether the extension of the picture of a horse, if we conceive it to shrink into the nothingness of a mathematical point, this simple and non-extended something has ceased to be a picture of a horse at all. It is inconceivable that it should represent any creature in the heavens above, in the earth beneath, or in the waters under the earth.

When, therefore, the plain man loosely talks of ideas as *small* pictures, he may be speaking unwisely, but he is not talking mere nonsense. It is reserved for him to do this when, laboring under the delusion that it is his duty to put these ideas in or on a non-extended self, he affirms of them *absolute simplicity* in the hope that this may render his task a less desperate one. We must admit, in his justification, that it does seem somewhat plausible to maintain that it is more difficult to conceive of an extended thing as existing in or on a non-extended thing than to conceive of a non-extended thing as doing this. Still, men have more than one

idea at a time, and he who has reduced his ideas to punctual insignificance as a preliminary to incarcerating them in their spaceless cell, must still ask himself how two or more ideas thus bottled can be conceived to remain distinct and distinguishable.

When brought to bay by questions, the plain man may not unreasonably maintain that, in speaking of the relation of the self to its ideas, he uses the words *in* and *on* in a loose sense, and does not intend them to be taken with offensive literalness. We all say in common life that ideas are in the mind, and we do not stop to make clear to ourselves what our words mean. But philosophic theory — and the doctrine of the atomic self is a philosophic theory — has no right to be content with the indefiniteness of thought which may serve a useful purpose in common life. When Berkeley has set forth his doctrine that the things of sense are only ideas, and are, hence, in the mind, he comes face to face with the objection that, if they are extended and yet are in the mind, the mind must be extended. This consequence he is not ready to admit, and he argues that the mind is not extended, for these things are in the mind only "by way of idea."[1] What can this mean? Nothing definite. He has fled to the refuge of the plain man — obscurity. Ideas are *in* the mind somehow, but just how cannot be made plain.

In the foregoing pages I have tried to make it clear that, when the indefinite thought of the plain man is carefully examined, it is found to be the echo of an ancient materialism or semi-materialism. This gives it its positive content. With this it attempts to combine the statement that the self is immaterial. When great emphasis is laid upon this latter, the positive content of the atomic doctrine is wiped out of existence. But in most men's minds great emphasis is not laid upon this negative element, and they can find satisfaction in the indefinite materialistic notions which they continue to hold touching the substance of the self, its relation to its ideas, its presence in the human body, and its interaction with matter.

It may appear to some that I am beating a dead horse in thus criticising at length the doctrine of the atomic self. It is held in certain quarters that the notion of *substratum* has been so thoroughly exploded that it is scarcely necessary to waste time over it. Whatever the self may be, it is said, we can at least be sure that

[1] "Principles of Human Knowledge," § 49.

it is not the Lockian *substance*, for it is mere misconception to assume that things have an indefinite and unintelligible core of this kind.

But it is by no means evident that the doctrine is so dead as those who speak thus would have us believe. No doctrine can hold its own for centuries as the orthodox belief of the scholarly world, without leaving its trace upon the thought even of an age more or less influenced by new ideas. The doctrine of the atomic self is emphatically that of the plain man to-day, *i.e.* it embodies the notions cherished by vastly the greater part of the cultivated persons whom one meets, touching the nature of the mind and its connection with the body. Until quite recently it was about the only doctrine taught to the youth in the higher institutions of learning in England and America, and it is still presented as the final word of wisdom in many quarters where one might have expected to find something better.

Nor must it be overlooked — and this is a point of especial importance — that some of those who appear to be the most energetic in their repudiation of the atomic self do not really repudiate it at all. They refine it away, they sublimate it, they deny to it a place in time as well as a position in space, they render it the most incomprehensible of all incomprehensibles, they call it a self-activity — and, in the face of all this, they go on thinking of it indefinitely in much the same way as the plain man thinks of his atomic self. The dust of words which they have raised makes it more or less difficult to distinguish what is the true content of their doctrine. Nevertheless, a careful examination cannot fail to reveal that they are true descendants of the substratumists, and that, if their balloon has taken an all too erratic flight into the region of thin air, it is only because they have been more incautious than the genuine substratumist in throwing out the materialistic ballast that keeps the doctrine of the atomic self from resolving itself into mere negations. Of this neo-Kantian branch of the substratumists I have treated elsewhere,[1] and it is unnecessary for me to enter into the matter here at greater length.

But what shall we say to one who drops the substratum self altogether and assigns to *ideas* the rôle which has heretofore been assigned to it — who makes ideas determinative of motions in matter? This can hardly be said to be a doctrine affected by the

[1] Chapter V.

plain man, for he must have, as we have seen, a something in which ideas may inhere or to which they may in some sense belong. Still, it is a possible doctrine, and it may not without justice be regarded as a development from or a modification of the plain man's doctrine. That they have much in common becomes evident just as soon as we endeavor to make quite clear what is meant by the statement that ideas are determinative of motions in matter.

We are to conceive that a detailed knowledge of all the motions of all the atoms constituting the body of the boy who is chasing the dog would reveal that we are not dealing with a perfect mechanism. At some point there is a break. All the motions which have preceded will not account for all the motions that follow. We must fill up this gap with ideas and suppose them to be capable of being affected by the machine and, in turn, of affecting it. In other words, the ideas become, at least for the time being, a part of the machine.

Now, that ideas should become even for an instant a part of the machine can seem simple and natural only to one who has no clear conception of all that this implies. If the statement that matter can act upon ideas and ideas upon matter is to mean anything at all, and is not to remain an empty collocation of sounds, we must conceive the ideas to be *present* in the body. The machine needs patching up *at the break*, and the insertion of a coupling which is not present is manifest nonsense. If the ideas are not entities which exist in space, if they are nowhere, then they are, of course, no nearer to the point at which they are needed than they are to any other point in the body. Indeed, they are no nearer to this point than they are to any point in any other body, and the notion of the insertion of ideas to fill a gap simply lapses.

Descartes realized this truth perfectly well, and he took care to put his soul in the little pineal gland, where it could do the most good. If we deny that the things which interact are *present* to each other, if we deny that they form part of the same system in space, we exenterate our notion of interaction, and it becomes a mere shell. As a matter of fact, we do not have to go far afield to discover that those who trace the series of changes which run from the periphery of the body along the afferent nerves, and the series of changes which run from the central nervous system along the efferent nerves, and find it impossible to connect these with each other except with a coupling of ideas — we do not, I say,

have to go far to find that these vaguely assign to ideas a spatial presence, and put them *between* the two sets of changes. They do precisely what the plain man does with his atomic self, and they do it, just as he does, without a clear recognition of what it is that they are doing.[1]

If, then, the ideas are to be built into the machine in even a semi-intelligible sense, they must be conceived to be present in the body. We have seen above that, when we strive to get a clear understanding of the nature of the presence of the atomic self in the body, we discover it to be a dimly imagined material presence. Here the case is the same. But this vague attribution to ideas of a material presence must go the way of all misconceptions when its true significance is brought to light.

Let us suppose that the idea thus made determinative of motions in matter is that of a yellow dog. Shall we place this at a definite point in the mist of moving atoms that constitute the boy's brain? Can atoms move toward it and away from it? Can they touch it? Can it move from place to place? Is it spread out in space as it seems to the boy to be, or must we assume it to be a mathematical

[1] "If feelings are causes, of course their effects must be furtherances and checkings of internal cerebral motions, of which in themselves we are entirely without knowledge. It is probable that for years to come we shall have to infer what happens in the brain either from our feelings or from motor effects which we observe. The organ will be for us a sort of vat in which feelings and motions somehow go on stewing together, and in which innumerable things happen of which we catch but the statistical result. Why under these circumstances we should be asked to forswear the language of our childhood I cannot well imagine, especially as it is perfectly compatible with the language of physiology. The feelings can produce nothing absolutely new, they can only reinforce and inhibit reflex currents, and the original organization by physiological forces of these in paths must always be the groundwork of the psychological scheme.

". . . The nerve-currents, coursing through the cells and fibres, must in this case be supposed strengthened by the fact of their awaking one consciousness and dampened by awaking another. *How* such reaction of the consciousness upon the currents may occur must remain at present unsolved.

". . . Habitual actions are certain, and being in no danger of going astray from their end need no extraneous help. In hesitant action there seem many alternative possibilities of final nervous discharge. The feeling awakened by the nascent excitement of each alternative nerve-tract seems by its attractive or repulsive quality to determine whether the excitement shall abort or shall become complete. Where indecision is great, as before a dangerous leap, consciousness is agonizingly intense. Feeling, from this point of view, may be likened to a cross-section of the chain of nervous discharge, ascertaining the links already laid down, and groping among the fresh ends presented to it for the one which seems best to fit the case." — James, "Psychology," Chapter V.

point? If it cannot lie between two atoms, approach and be approached, touch and be touched, in what sense can it be declared to be present? He who talks vaguely of its presence, and does not raise any of these questions, is walking in thick darkness and is unaware of that fact. He dimly conceives ideas to be material, just as the plain man dimly conceives of the atomic self as material. He puts them in space, and yet he would shrink from the consequences that this entails, did he realize what those consequences are.

This doctrine that ideas may be used to patch up a defective mechanism does not need to be discussed at great length, because it differs so little, in any point that need concern us here, from the doctrine of the atomic self. One is impressed, in studying both the original doctrine and its modification, with the thought that it is exceedingly hard for the human mind to shake itself free from materialistic ways of thinking. Some of those who have been most anxious not to be accounted materialists have retained the most unmistakable traces of materialistic thought.

CHAPTER XVIII

THE AUTOMATON THEORY: ITS GENESIS

THUS it seems clear that what is known as the "interaction" theory of the relation of mind and body gains what plausibility it possesses from the covert ascription of materiality to mind. When this is made apparent, and when a resolute attempt is made to remove every materialistic element from the notion of the mind, then it also becomes clear that the attempt to build mind into the bodily mechanism, and to make it, at least for the time being, one of its constituent parts, is nothing less than absurd. The mind is not *present* to the body in any sense that would permit of its filling a gap in the bodily mechanism. Interaction becomes a mere word, the name of an empty nothing, and the impulse to insist upon it dies of inanition. No clear-minded man can take pleasure in maintaining that there is interaction between mind and body, if the word "interaction" suggests to his mind nothing at all.

But if we dismiss the doctrine of interaction as being rank materialism in disguise, and hence worthy of reprobation, what remains to us? There remains, for one thing, the doctrine of the physical automaton with parallel mental states, and this has been the refuge of many who have felt themselves forced out of the position occupied by the interactionist. What can be said for and against this doctrine?

That the human mind is related to the human body as it is not related to other material things was discovered by man long before there was a science of psychology. But the problem of the mind's more definite localization — to use a materialistic form of expression somewhat justified by custom — was and had to remain an insoluble problem until men gained some definite knowledge of the structure of the human body and of the mode of functioning of its various parts. Thus, at the time of their promulgation, no authoritative denial could be given to the Atomistic doctrine that the brain is the seat of thought, the heart of anger, and the

liver of desire; to the doctrine of Critias, who regarded the blood as the seat and substratum of the soul; to that of Plato, who distributed his tripartite soul in the head, the chest, and the region below the diaphragm; or to that of Aristotle, who relegated the brain to a subordinate place in the animal economy and found the heart to be the seat of sensations.

Not until the beginnings of modern philosophy and that revival of the study of nature which has resulted in the several sciences as we now have them, did man come into the possession of such information as would justify him in definitely and finally rejecting the one or the other of the above-mentioned doctrines, and in expecting all those who follow his arguments to be compelled by their cogency to accept his conclusions. In place of conflicting opinions, more or less arbitrarily taken up upon a basis of slender and uncertain evidence, there has emerged a body of facts that it is not too much to call scientific, and that we find presented in substantially the same form by all reputable writers upon physiology and physiological psychology. It remains to render our knowledge upon the subject more complete and definite, and it also remains to interpret its significance, but it seems to be no longer an open question whether the whole edifice which has been built up by successive generations of investigators shall be allowed to stand, or shall be torn down in order to make room for a quite different structure. One may hold tentatively some of the conclusions arrived at by Goltz, or Munk, or Ferrier, or Luciani, and may be strongly inclined to wait for more light before turning them into articles of faith; but no reasonable man can in our day revert to the doctrine of Aristotle, or cast in his lot with the Atomists.

The honor of having laid enduring foundations for this edifice must be accorded to Descartes, whose careful study of the structure of the human body revealed to his discriminating eye that it is a mechanism of vast complexity and of the most perfect adjustment. In particular he comprehended the significance of the brain as a central organ and the meaning of the distribution of the nerves which connect it with every part of the body. He writes: —

"We must know, therefore, that the human soul, although it is united with the whole body, has, nevertheless, its chief seat in the brain, in which alone it not only understands and imagines,

but also feels; and this by means of the nerves which, like threads, extend from the brain to all the other members, and which are so connected with them, that it is scarcely possible to touch any part of the human body without setting in motion some nerve-endings scattered through it, with the result that their motion is transferred to the other extremities of these nerves, which are collected together in the brain around the seat of the soul, as I have explained at sufficient length in the fourth chapter of my Dioptrics. Now the motions thus excited in the brain by the nerves affect in divers ways the soul or mind intimately united with the brain, according to their divers natures. And these various affections of the mind, or the thought immediately resulting from these motions, are called sense-perceptions, or, in common parlance, sensations."[1]

"It is clearly proved that the soul perceives what happens to the body in each of the members, not in so far as it is in each of the members, but only in so far as it is in the brain, and by means of the nerves. For, in the first place, various maladies which affect the brain alone deprive us of all sensation or disorder sensation; just as sleep, which is only in the brain, daily deprives us in great part of our power of perception, which is afterwards restored when we wake. In the second place, though the brain be uninjured, if only the nervous paths extending to it from the external members be obstructed, the perception of those members is lost. Finally, pain is sometimes felt as though it were in certain members in which there is no cause of pain, while there is such cause in certain others through which pass the nerves extending from the former to the brain. This last fact may be illustrated by numberless experiments, but here it is sufficient to cite one. A certain maiden whose hand was badly diseased was blindfolded whenever the surgeon came, that she might not be distressed by the sight of the dressing of the sore. After some days her arm was amputated as far up as the elbow, because gangrene had spread in it, and cloths were put in place of the arm, so as to keep her in complete ignorance of the fact that she was deprived of it. Nevertheless, she kept complaining that she felt various pains, now in one, now in another, of the fingers of the hand that had been cut off. It is plain that this could not have happened, were it not that the nerves, which formerly ran from

[1] "Principia Philosophiæ," IV, 189.

the brain to the hand, and which after the operation terminated in the arm at the elbow, were there set in motion in the same manner as they formerly had to be set in motion in the hand in order to impress upon the soul residing in the brain the perception of an ache in this or that finger."[1]

The brain, then, is, in an especial sense, the organ of consciousness. Messages are brought to it from the various members, and, when it is affected in certain ways, the soul has perceptions. Nor is it necessary to suppose that, when an object is perceived, there is an image of the object formed in the brain, and that this is contemplated by the soul. The motion in the brain is quite different from the perception of the object.[2] And just as a message brought along a nerve to the brain is the necessary antecedent of sensation or perception, so a message sent from the brain along a nerve is the necessary antecedent of every movement in the muscles.[3] Some of the movements in the muscles are initiated by the soul, which inclines the little pineal gland in the brain in this direction or in that, and thus sends out the appropriate message to the muscles,[4] but many movements may take place which are not thus initiated: —

"I have explained in my Dioptrics how all visual objects are revealed to us only because they set up a local disturbance, by means of the transparent bodies which are between them and us, first in the little threads of the optic nerves which are at the back of the eyes, and after that in the parts of the brain whence these nerves come; and they set these in motion in as many different ways as they cause us to see differences in the objects. I have also explained that it is not the very movements which take place in the eye, but those which take place in the brain, that represent these objects to the soul. In the same way it is easy to conceive that sounds, odors, tastes, heat, pain, hunger, thirst, and in general all the objects, whether of our other external senses or of our internal appetites, also excite some movement in our nerves, which passes along them to the brain. And these divers movements of the brain, besides causing our soul to perceive divers feelings, can also bring it about without the intervention of the soul that the spirits take their course toward certain muscles rather than toward others, and thus move our

[1] "Principia Philosophiæ," IV, 196.
[2] "Dioptrique," Discours Quatrième.
[3] "Les Passions de l'Âme," Art. 11.
[4] *Ibid.*, Art. 24.

members. In proof of this, I cite one example. If some one brings his hand quickly toward our eyes, as though with the intention of striking us, we, although we know him to be our friend and to be doing it merely by way of jest, and are sure that he will take care to do us no harm, nevertheless find it difficult to avoid closing our eyes. This shows that the action takes place without the intervention of the soul, for it is against our will, which is the only or, at least, the principal action of the soul. It is due to the fact that the mechanism of our body is such that the movement of the hand toward our eyes excites another movement in our brain, and this conducts the animal spirits into the muscles which make the eyelids fall." [1]

Such movements are performed by the body automatically, and they are sufficiently numerous. Breathing, walking, eating, and, indeed, all the movements which we have in common with the brutes may be thus automatic. They are due to the mechanism of the body, just as the movement of a watch is due to its spring and to the shape of its wheels.[2] And since such movements do not require the intervention of the soul, it is unnecessary to assume that creatures capable of such movements alone have consciousness of any sort — they are bare machines, and are incapable of thought and feeling. It is a mere prejudice that leads us to attribute consciousness to the brutes.

There are, however, certain actions that cannot be performed by the body automatically. These are initiated by the soul resident in the little pineal gland, which directs the flow of the animal spirits, and possesses control over the mechanism of the body. The soul must obtain its information from the messages brought to it along the nerves, and even its power to recollect past experiences is due to traces left by past movements of the spirits in the brain; [3] in so far it is dependent upon the mechanism of the body. But it may modify the movements which would take place in the body if left to itself, and a human body joined to a human soul cannot be regarded as a mere machine. It is a machine with an intelligent governor.

We have seen [4] that the Cartesian soul, seated at a definite point in the brain, and engaged in pushing and being pushed, comes perilously near to being a mere lump of matter, a part of

[1] "Les Passions de l'Âme," Art. 13.
[2] *Ibid.*, Art. 16.
[3] *Ibid.*, Art. 42.
[4] See the preceding chapter.

the machine that it is supposed to control. Yet Descartes had maintained that the essence of matter is extension and the essence of the soul is thought. He had by his definitions so separated the two that it became inconceivable that they should come together in such a way as to form one whole. The difficulty so impressed his successors that they were impelled to deny the direct interaction of soul and body. How can that which is not body either push or be pushed? It remained to account for the apparent interaction of soul and body in some other way, and several ways were suggested.

The Occasionalist maintained that, no direct interaction being possible, *on occasion of* this or that volition God calls forth the appropriate motion in matter; and in adopting this doctrine he took refuge in what Spinoza calls "the asylum of ignorance." The advocate of Predetermined Harmony held that mind and body are related as are two clocks, whose wheels revolve independently, but which have been so adjusted that their motions exactly correspond.

Both of these suggestions were of the sort that might be expected to appeal more forcibly to the mediæval mind than to the modern mind; but the same cannot be said of the solution of the problem propounded by Spinoza, that strange genius who found it possible to combine a mediæval metaphysic with a clear appreciation of the significance of the new mechanical philosophy. He thinks that we may comprehend clearly how it is that the body cannot determine the mind to think, nor the mind determine the body to motion and rest, if we will but consider that the mind and the body are one and the same thing viewed under two attributes, *i.e.* viewed, in the one case, under the attribute thought, and, in the other, under the attribute extension. Body may determine changes in body, and thought may determine changes in thought, but a thing cannot determine itself, and mind and body are one and the same thing. There is not interaction, but there is parallelism, and "the order of the things done and suffered by our body is by nature the same as the order of the actions and passions of the mind." [1]

"These arguments," he continues, "leave no room for doubt, but nevertheless I scarcely think I can induce men to weigh them with an unprejudiced mind, unless I support the doctrine by an

[1] "Ethics," III, 2, scholium.

appeal to experience, so firmly are men persuaded that the body is set in motion and is brought to rest solely at the mind's good pleasure, and performs a multitude of actions which depend only on the mind's choice and ability to think. For as yet no one has determined of what the body is capable; in other words, experience has as yet taught no one what the body can do according to the laws of nature, considered merely as corporeal nature, and what it cannot do unless it be determined by the mind. For no one has as yet a sufficiently accurate knowledge of the structure of the body to be able to explain all its functions; to say nothing of the fact that we observe in brutes many actions that far surpass human sagacity, and that somnambulists do a great many things while asleep that they would not dare to do when awake; which sufficiently proves that the body, in accordance with the laws of its own nature solely, can do much that its mind wonders at.

"Again, no one knows how or by what means the mind moves the body, nor how many degrees of motion it can impart to the body, and how swiftly it can move it. Hence it follows that when men say that this or that action of the body has its source in the mind, which controls the body, they do not know what they are saying, and merely confess in high-sounding words that they are ignorant of the true cause of that action and do not wonder at it.

"They will object that, whether they do or do not know by what means the mind moves the body, yet they know by experience that if the human mind were not capable of thinking, the body would be motionless. Furthermore, that they know by experience that it is within the power of the mind alone to speak or to remain silent, and to do many other things which, consequently, they believe to depend upon the mind's decree.

"But, as regards the first point, I ask those who urge this objection, whether experience does not also show that if the body remains motionless, the mind is incapable of thinking? For when the body comes to rest in sleep, the mind slumbers with it, and has not the power of thinking it has when awake. Again, I think every one knows by experience that the mind is not always equally capable of thinking about the same object; but, according as the body is the better adapted to having the image of this or that object excited in it, the mind is the more capable of contemplating this or that object. It will be objected that one cannot, from the laws of nature, when nature is regarded merely as corporeal,

deduce the causes of buildings, paintings, and things of this sort, which are due solely to human skill, nor could the human body, unless it were determined and guided by the mind, build a temple. But I have already shown that those who reason thus do not know what the body can do, or what can be deduced from a mere contemplation of its nature, and that they do know by experience that a great many things take place merely according to the laws of nature that they never would have believed could take place except under the direction of the mind. Such are the acts performed by somnambulists during sleep — acts which they themselves wonder at when awake. I would, moreover, call attention to the structure of the human body, which vastly surpasses in ingenuity anything constructed by human skill, to say nothing of the truth, proved above, that an infinity of things must follow from nature considered under any attribute whatever.

"And as regards the second point, surely the condition of human affairs would be much more satisfactory if it were as much within man's power to be silent as to speak. But experience gives sufficient and more than sufficient proof of the fact that there is nothing less under a man's control than his tongue, nor is there anything of which a man is less capable than of restraining his impulses. This is the reason that most persons believe that we are free only in doing those things to which we are impelled by slight desires, for the impulse to do such things can be easily checked by the memory of some other thing of which we often think; but that we are by no means free in doing those things to which we are impelled by strong emotion, which cannot be checked by the memory of some other thing. But had they not had experience of the fact that we do many things which we afterward regret, and that we often, when we are harassed by conflicting emotions, see the better and follow the worse, nothing would prevent them from believing that we are always free in our actions. Thus the infant believes that it desires milk of its own free will; the angry child that it is free in seeking revenge; and the timid that it is free in taking to flight. Again, a drunken man believes that he says of his own free will things he afterward, when sober, wishes he had left unsaid; so also an insane man, a garrulous woman, a child, and very many others of the sort believe they speak of their own free will, while, nevertheless, they are unable to control their impulse to talk. Thus experience itself shows,

no less clearly than reason, that men think themselves free only because they are conscious of their actions and ignorant of the causes which determine them. It shows, moreover, that the mind's decisions are nothing but its impulses, which vary with the varying condition of the body. For every one regulates his actions as his emotions dictate; and those who are harassed by conflicting emotions do not know what they want; while those who are not controlled by any emotion are driven hither and thither by the slightest motive. All this certainly shows clearly that the mind's decision, as well as its impulse and the determining of the body, all are by nature simultaneous, or rather all are one and the same thing, which, when it is considered under and expressed by the attribute thought, we call a decision, and when it is considered under the attribute extension, and deduced from the laws of motion and rest, we call a determining."

The reader will see that, in passing from Descartes to Spinoza we make a long step in advance. By an ingenious suggestion, a place among existing things seems to be found for the human mind without turning it into a quasi-material something and interjecting it as a stop-gap between two motions in matter. Why the course of ideas should run parallel with the series of changes which take place in the body seems, at first blush, at least, to be explained by the fact that the ideas are but another side, so to speak, of such changes.

And to one who has taken this step it is quite possible to accept all that Descartes says of the mechanism of the body and yet repudiate the Cartesian doctrine, shocking to the mind of the natural man, that the brutes are mere machines without consciousness. No man whose mind has not been perverted by philosophic theory can believe that his dog does not think and feel, if only in a humble way. If all the changes in the human body can be explained by a reference to matter in motion alone, and, nevertheless, a man can be conscious, it follows that automatism does not necessarily imply unconsciousness. Of course, the distribution of minds in nature remains a question to be investigated, and one may well ask oneself where one may infer mind and where one may not. Spinoza himself regarded all nature as animated,[1] and we may or may not elect to follow him in this, even if we accept his doctrine of parallelism in a general way.

[1] "Ethics," II, 13, scholium.

The problem of the distribution of minds, and that of the freedom of the will touched upon in the above extract, will be discussed in later chapters. It is enough here to recognize that a place seems to have been made for mind which is not *a place* in an offensive sense of the word, — a place which can be occupied only by a material thing, — and also that a peculiar and intimate relation has been established between the human mind and the human body. One must add, however, as touching this last point, that Spinoza, although he was quite familiar with the results of Descartes' investigations, nevertheless uniformly dwells upon the relation of *mind* and *body*, and not upon the relation of *mind* and *brain*.[1] The beginnings of the science of cerebral physiology do not appear to have impressed him greatly, apparently because of his doctrine of the universal distribution of mind — not the first instance in which a prepossession in favor of some philosophical theory has blinded one to the significance of scientific discoveries.

I have set forth at some length the argument of Descartes and the solution offered by Spinoza of the problem he raises, because the two appear in combination in the modern doctrine of the physical automaton with parallel mental states, and because one can scarcely do full justice to both aspects of that doctrine until one knows how they came to take their place in the evolution of speculative thought.

Some things to which Descartes pinned his faith have disappeared from modern physiological theory. The animal spirits, which ran along the nerves from the periphery of the body to the brain, and from the brain to the muscles, have been deprived of their rôle. The pineal gland has lost its preëminent distinction as the soul's seat, and has sunk into an insignificance little better than that of a pimple. The cerebral cortex has assumed a new importance, and certain parts of it have been found to be more intimately concerned in certain sensory and motor functions than other parts. An array of facts has been marshalled, pathological and experimental, which has made the whole subject of the localization of consciousness (may I be permitted the phrase?) more bewildering than it seemed to be at an earlier age, when the only mystery which remained to be fathomed appeared to be that of the interaction of the soul with "the little gland in the midst of the brain." The study of the hypnotic and other allied states has

[1] "Ethics," II, *passim*.

resulted in the emergence of the problem of conceiving of two or more mutually exclusive consciousnesses as connected with the one brain. Finally, the decapitated frog, with its seemingly purposive actions, and experiments performed upon other mutilated animals, as well as certain pathological phenomena observed in human beings, have suggested that, although *the* consciousness of consciousnesses, that one which we commonly have in mind when we speak of the consciousness of this or that animal, is to be referred to the cerebral cortex, yet there may be other consciousnesses of a more or less rudimentary sort connected with lower nervous centres in the same animal. The whole subject has become vastly more complex than it was when Descartes wrote, and yet, barring the jump at a given point from brain to mind and from mind to brain, the modern doctrine differs only in detail from the Cartesian. The science of cerebral physiology has advanced, but it still rests upon the basis laid down for it by Descartes.

Of some of these differences in detail it will be necessary to speak when I come to discuss the question of the distribution of minds in nature. Meanwhile, it is well to notice that not all of those who have followed the advance of science have clearly appreciated the significance of the Spinozistic suggestion of the parallelism of mind and body. They remain semi-Cartesian in their view of the relation of mind and body.

This is evidently true of those somewhat unreflective materialists who speak of consciousness as a "secretion" or as a "function" of the brain. For them the soul has been ejected from its place in the pineal gland, but it still holds a place in the world of matter and motion under an assumed name. And the same may be said of some who are not willing to call themselves materialists, and yet slip unconsciously into a similar error. Of these I cannot cite a better example than Professor Huxley, who has made a careful study of the Cartesian doctrine, and shows himself to be in much sympathy with it. He writes: —

"But though we may see reason to disagree with Descartes' hypothesis that brutes are unconscious machines, it does not follow that he was wrong in regarding them as automata; and the view that they are such conscious machines is that which is implicitly, or explicitly, adopted by most persons. When we speak of the actions of the lower animals being guided by instinct and not by reason, what we really mean is that, though they feel as we do,

yet their actions are the results of their physical organization. We believe, in short, that they are machines, one part of which (the nervous system) not only sets the rest in motion, and coördinates its movements in relation with changes in surrounding bodies, but is provided with special apparatus, the function of which is the calling into existence of those states of consciousness which are termed sensations, emotions, and ideas. I believe that this generally accepted view is the best expression of the facts at present known.

"It is experimentally demonstrable — any one who cares to run a pin into himself may perform a sufficient demonstration of the fact — that a mode of motion of the nervous system is the immediate antecedent of a state of consciousness. All but the adherents of 'Occasionalism,' or of the doctrine of 'Preëstablished Harmony' (if any such now exist), must admit that we have as much reason for regarding the mode of motion of the nervous system as the cause of the state of consciousness, as we have for regarding any event as the cause of another. How the one phenomenon causes the other we know, as much or as little, as in any other case of causation; but we have as much right to believe that the sensation is an effect of the molecular change as we have to believe that motion is an effect of impact; and there is as much propriety in saying that the brain evolves sensation as there is in saying that an iron rod, when hammered, evolves heat.

"As I have endeavored to show, we are justified in supposing that something analogous to what happens in ourselves takes place in the brutes, and that the affections of their sensory nerves give rise to molecular changes in the brain, which again give rise to or evolve the corresponding states of consciousness. Nor can there be any reasonable doubt that the emotions of brutes, and such ideas as they possess, are similarly dependent upon molecular brain changes. Each sensory impression leaves behind a record in the structure of the brain — an 'ideagenous' molecule, so to speak, which is competent, under certain conditions, to reproduce, in a fainter condition, the state of consciousness which corresponds with that sensory impression; and it is these 'ideagenous molecules' which are the physical basis of memory.

"It may be assumed, then, that molecular changes in the brain are the causes of all the states of consciousness of brutes. Is there any evidence that these states of consciousness may, conversely,

cause those molecular changes which give rise to muscular motion? I see no such evidence. The frog walks, hops, swims, and goes through his gymnastic performances quite as well without consciousness, and consequently without volition, as with it; and if a frog, in his natural state, possesses anything corresponding with what we call volition, there is no reason to think that it is anything but a concomitant of the molecular changes in the brain which form part of the series involved in the production of motion.

"The consciousness of brutes would appear to be related to the mechanism of their body simply as a collateral product of its working, and to be as completely without any power of modifying that working as the steam whistle, which accompanies the work of a locomotive engine is without influence upon its machinery. Their volition, if they have any, is an emotion indicative of physical changes, not a cause of such changes.

". . . It is quite true that, to the best of my judgment, the argumentation which applies to brutes holds equally good of men; and, therefore, that all states of consciousness in us, as in them, are immediately caused by molecular changes of the brain-substance. It seems to me that in men, as in brutes, there is no proof that any state of consciousness is the cause of change in the motion of the matter of the organism. If these positions are well based, it follows that our mental conditions are simply the symbols in consciousness of the changes which take place automatically in the organism; and that, to take an extreme illustration, the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act. We are conscious automata, endowed with free will in the only intelligible sense of that much-abused term, — inasmuch as in many respects we are able to do as we like, — but none the less parts of the great series of causes and effects which, in unbroken continuity, composes that which is, and has been, and shall be — the sum of existence."[1]

It is quite clear that the man who believes the human body or the body of the brute to be "provided with special apparatus, the function of which is the calling into existence of those states of consciousness which are termed sensations, emotions, and ideas," and, furthermore, who regards such states of consciousness as

[1] On the Hypothesis that Animals are Automata, and its History, "Collected Essays," N.Y., 1902, Vol. I, pp. 237–244.

"collateral products" of the body's working, makes the relation of mind and brain much the same as that of the saliva and the salivary gland. He is no true parallelist, and he cannot escape the just criticism which may be brought against the materialist. He may differ from the interactionist in refusing to regard consciousness as a cause of bodily motions; but he makes it an effect of physical changes, and thus assigns to it a place in the chain of causes and effects which make up the life history of the physical universe.

The secretion of a gland, however, is not and cannot be a mere *effect*. When once produced, it does not simply disappear from the universe into which it has been ushered, and leave no trace behind. And if consciousness has such a place in the material world, it ought to be possible, with the growth of science, to lay it bare to direct inspection, to capture it or the products of its decomposition, and investigate such, as one might investigate the structure of a molecule. Practical difficulties there may be in such an investigation; but theoretical difficulties there surely cannot be. Are we not dealing with a material product? and are not all material products open to direct inspection, except when they are hidden from our eyes by reason of their excessive minuteness, or by some barrier of the sort, which it is not absurd to dream of as becoming some day no longer a barrier? The true parallelist strongly objects to any doctrine which thus obliterates, even covertly, the distinction between mind and matter. To his doctrine, in its modern form, we will now turn. It is sufficiently important to be treated in separate chapters.

CHAPTER XIX

THE AUTOMATON THEORY: PARALLELISM

In describing the modern doctrine of the physical automaton with parallel psychical states, I cannot do better than to follow that clearest of writers, Professor W. K. Clifford, who has set it forth in detail in his lecture on "Body and Mind."[1]

Professor Clifford points out that there are sciences which have to do with material things, inorganic and organic, and he thinks that, the gulf between inorganic or organic bodies having at last been firmly bridged over, we may regard ourselves as having now one united science of physics, which has to do with matter in all its forms. With this science he contrasts the science of consciousness, which deals with the laws of mind, and he asks whether it is not possible to construct some bridge that will firmly unite the two.

That this bridge may not break down like those which philosophers have made, he thinks that it is necessary to observe with great care the exact difference between the two classes of facts, material and mental. "If we confuse the two things together to begin with," he writes, "if we do not recognize the great difference between them, we shall not be likely to find any explanation which will reduce them to some common term. The first thing, therefore, that we have to do is to realize as clearly as possible how profound the gulf is between the facts which we call Physical facts and the facts which we call Mental facts." The distinction has been one which has been observed from the earliest times, for even primitive man has ascribed to other men a consciousness like his own. But primitive man has connected this consciousness with the body seen in dreams, a body not physical in the ordinary sense, and not made of ordinary matter. Such a body he has called the soul. It is difficult to think that the gross material body can be conscious, but when one has come to believe that we possess another and a different body, of the nature of which we know

[1] "Lectures and Essays," London, 1879, Vol. II.

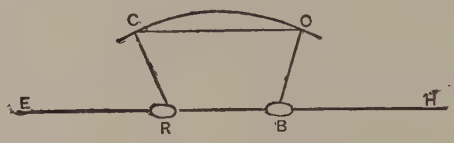
little, it is natural to make it responsible for the consciousness which we cannot help attributing to other men. Thus the soul which primitive man, and those who have followed him, have attributed to each man, is, after all, a material thing in disguise. What can science put in place of this early hypothesis of our savage ancestors?

In developing his thought Clifford recognizes Descartes as the great discoverer of the truth that the nervous system is that part of the body which is related directly to the mind, and he quotes approvingly the series of propositions in which Professor Huxley sums up Descartes' contribution to the doctrine of mind and brain, expounding them in the light of modern thought. As far as Descartes' argument goes, he is in substantial agreement with it: the brain is the organ of sensation, thought, and emotion; the movements of animals are due to a change in the form of the muscles, and this is brought about by a message from the brain carried along a motor nerve; the sensations of animals are due to messages brought along sensory nerves to the brain; messages may be transmitted from the sensory nerves, through the brain, to the motor nerves, and thus cause movement of muscle, without, or even contrary to, volition; the motion of any portion of the brain, excited by the motion of a sensory nerve, leaves behind it a readiness to be moved in the same way in that part, and anything which resuscitates the motion gives rise to the appropriate feeling, which is the physical mechanism of memory. In all this it is only necessary to change a word here and there; but to this something should be added. It is this:—

We must not fail to note that, not only is some change in the matter of the brain the invariable antecedent, but some other change is the *invariable concomitant* of sensation, thought, and emotion. Furthermore, not only does the motion of any portion of the brain, excited by the motion of a sensory nerve, leave behind it a readiness to be moved in the same way in that part, but two simultaneous disturbances set up in the brain create, in some way or other, a link between them, so that, when one of these disturbances is set up afterward, the other one is also set up.

Again. It should be remarked that there are two ways in which a stimulus coming, let us say, to the eye can be made to move the hand. In the following diagram let *E* be the eye, *R* and *B* the two masses of gray matter lying at the base of

the brain and called, respectively, the *optic thalami* and the *corpora striata*, *H* the hand, and *CC* the *cerebral hemispheres*. It is possible for the light impinging upon the eye to send a message along the optic nerve to the optic thalami, and that message may go almost direct to the hand, so as to make the hand move; or else the message may go by a longer route, which takes more time. If an action takes place involuntarily, without any effort of the will, the message goes from the eye to the hand along the



line *ERBH*. But if it is necessary to deliberate about the action, to call in the exercise of the will, the message goes around the loop-line, *ERCCBH*; *i.e.* from the eye to the optic thalami, from them to the cerebrum, thence to the corpora striata, and so through the medulla to the hand.[1]

Finally, besides this fact of a message going from one part of the body to the brain and coming out in the motion of some other part of the body, there is another thing that is going on continually, and that is this: there is a faint reproduction of some excitement which has previously existed in the cerebral hemispheres, and which calls up all those that have become associated with it. It is continually sending down faint messages which do not actually tell the muscles to move, but which, as it were, begin to tell them to move. If a man is in a brown study, with his eyes shut, although he apparently sees and feels nothing at all, there is a certain action going on inside his brain which is not sensation, but is like it, because it is the transmission to the cerebral hemispheres of faint messages which are copies of previous sensations. This continuous action of the brain depends upon the blood supply.

So much for the nervous system which we have to consider in connection with the mind. What may we say touching facts of consciousness? We may say, in the first place, that if two feel-

[1] It is scarcely necessary to point out that Clifford's account of the working of the nervous mechanism is merely diagrammatic. It is, however, sufficient for the purpose in hand.

ings have occurred together, and one of them afterward occurs again, it is very likely that the other will be called up by it. That is to say, two states of consciousness which have taken place at the same moment produce a link between them, so that a repetition of the one calls up a repetition of the other. Again, we find a certain train of facts between our sensations and our exertions. Having seen a thing, we may go through a long process of deliberation as to what we shall do with it. On the other hand, by seeing a thing, we may quite suddenly be forced into doing something without any chance of deliberation at all. Thus, if a cab comes unexpectedly around the corner of the street, we jump out of the way, without stopping to think that it is a desirable thing to get out of the way of a cab. Still again, there is the fact that even when there is no actual sensation and no actual exertion, there may be, nevertheless, a long train of facts and sensations which hang together. There may be faint reproductions of sensation which are less vivid than the sensations themselves, but which form a series of pictures of sensations which pass continually before my mind. And there will be faint beginnings of action, which latter are what we call judgments.

Having laid this foundation for the bridge which he proposes to build between physical facts and mental, Clifford continues as follows:[1] —

"We have described two classes of facts; let us now notice the parallelism between them. First, we have these two parallel facts, that two actions of the brain which occur together form a link between themselves, so that the one being called up the other is called up; and two states of consciousness which occur together form a link between them, so that when one is called up the other is called up. But also we find a train of facts between the physical fact of the stimulus of light going into the eye and the physical fact of the motion of the muscles. Corresponding to a part of that train, we have found a train of facts between sensation, the mental fact which corresponds to a message arriving from the eye, and exertion, the mental fact which corresponds to the motion of the hand by a message going out along the nerves. And we have found a correspondence between the continuous action of the brain and the continuous existence of consciousness apparently independent of sensation and exertion.

[1] *Op. cit.*, pp. 50 ff.

"But let us look at this correspondence a little more closely; we shall find that there are one or two things which can be established with practical certainty. In the first place, it is not the whole of the physical train of facts which corresponds to the mental train of facts. The beginning of the physical train consists of light going into the eye and exciting the retina, and then of that wave of excitation being carried along the optic nerve to the ganglion. For all we know, and it is a very probable thing, the mental fact begins here, at the ganglion. There is no sensation till the message has got to the ganglion, for this reason, that if you press the optic nerve behind the eye you can produce the sensation of light. It is like tapping a telegraph, and sending a message which has not come from the station from which it ought to have come; nobody at the other end can tell whether it has come from that station or not. The optic ganglion cannot tell whether this message which comes along the nerve has come from the eye or is the result of a tapping of the telegraph, whether it is produced by light or by pressure upon the nerve. It is a fact of immense importance that all these nerves are exactly of the same kind. The only thing which the nerve does is to transmit a message which has been given to it; it does not transmit a message in any other way than the telegraph wire transmits a message — that is to say, it is excited at certain intervals, and the succession of these intervals determines what this message is, not the nature of the excitation which passes along the wire. So that, if we watched the nerve excited by pressure, the message going along to the ganglion would be exactly the same as if it were the actual sight of the eye. We may draw from this the conclusion that the mental fact does not begin anywhere before the optic ganglion. Again, a man who has had one of his legs cut off can try to move his toes, which he feels as if they were still there; and that shows that the consciousness of the motor impulse which is sent out along the nerve does not go to the end to see whether it is obeyed or not. The only way in which we know whether our orders, given to any parts of our body, are obeyed, is by having a message sent back to say that they are obeyed. If I tell my hand to press against this blackboard, the only way in which I know that it does press, is by having a message sent back by my skin to say that it is pressed. But supposing there is no skin there, I can have the exertion that precedes the action without

actually performing it, because I can send out a message, and consciousness stops with the sending of the message, and does not know anything further. So that the mental fact is somewhere or other in the region *RCCB* of the diagram, and does not include the two ends. That is to say, it is not the whole of the bodily fact that the mental fact corresponds to, but only an intermediate part of it. If it just passes through the points *RB*, without going round the loop from *C* to *C*, then we merely have the sensation that something has taken place — we have no voice in the nature of it and no choice about it. If it has gone round from *C* to *C*, we have a much larger fact — we have that fact which we call choice, or the exercise of volition. We may conclude, then, — I am not able in so short a space as I have to give you the whole evidence which goes to an assertion of this kind; but there is evidence which is sufficient to satisfy any competent scientific man of this day, — that every fact of consciousness is parallel to some disturbance of nerve matter, although there are some nervous disturbances which have no parallel in consciousness, properly so called, that is to say, disturbances of my nerves may exist which have no parallel in my consciousness.

"We have observed two classes of facts and the parallelism between them. Let us next observe what an enormous gulf there is between these two classes of facts.

"The state of a man's brain and the actions which go along with it are things which every other man can perceive, observe, measure, and tabulate; but the state of a man's own consciousness is known to him only, and not to any other person. Things which appear to us and which we can observe are called *objects* or *phenomena*. Facts in a man's consciousness are not objects or phenomena to any other man; they are capable of being observed only by him. We have no possible ground, therefore, for speaking of another man's consciousness as in any sense a part of the physical world of objects or phenomena. It is a thing entirely separate from it; and all the evidence that we have goes to show that the physical world gets along entirely by itself, according to practically universal rules. That is to say, the laws which hold good in the physical world hold good everywhere in it — they hold good with practical universality, and there is no reason to suppose anything else but those laws in order to account for any physical fact; there is no reason to suppose anything but the universal laws of

mechanics in order to account for the motion of organic bodies. The train of physical facts between the stimulus sent into the eye, or to any one of our senses, and the exertion which follows it, and the train of physical facts which goes on in the brain, even when there is no stimulus and no exertion, — these are perfectly complete physical trains, and every step is fully accounted for by mechanical conditions. In order to show what is meant by that, I will endeavor to explain another supposition which might be made. When a stimulus comes into the eye there is a certain amount of energy transferred from the ether, which fills space, to this nerve; and this energy travels along into the ganglion, and sets the ganglion into a state of disturbance which may use up some energy previously stored in it. The amount of energy is the same as before by the law of the conservation of energy. That energy is spread over a number of threads which go out to the brain, and it comes back again and is reflected from there. It may be supposed that a very small portion of energy is created in that process, and that while the stimulus is going around the loop-line it gets a little push somewhere, and then, when it comes back to the ganglion, it goes away to the muscle and sets loose a store of energy in the muscle so that it moves the limb. Now the question is, Is there any creation of energy anywhere? Is there any part of the physical progress which cannot be included within ordinary physical laws? It has been supposed, I say, by some people, as it seems to me merely by a confusion of ideas, that there is, at some part or other of this process, a creation of energy; but there is no reason whatever why we should suppose this. The difficulty in proving a negative in these cases is similar to that in proving a negative about anything which exists on the other side of the moon. It is quite true that I am not absolutely certain that the law of the conservation of energy is exactly true; but there is no more reason why I should suppose a particular exception to occur in the brain than anywhere else. I might just as well assert that whenever anything passes over the Line, when it goes from the north side of the Equator to the south, there is a certain creation of energy, as that there is a creation of energy in the brain. If I chose to say that the amount was so small that none of our present measurements could appreciate it, it would be difficult or indeed impossible for anybody to disprove that assertion; but I should have no reason whatever for making it. There being, then, an absence

of positive evidence that the conditions are exceptional, the reasons which lead us to assert that there is no loss of energy in organic any more than in inorganic bodies are absolutely overwhelming. There is no more reason to assert that there is a creation of energy in any part of an organic body, because we are not absolutely sure of the exact nature of the law, than there is reason, because we do not know what there is on the other side of the moon, to assert that there is a sky-blue peacock there with forty-five eyes in his tail.

"Therefore, it is not a right thing to say, for example, that the mind is a force, because if the mind were a force we should be able to perceive it. I should be able to perceive your mind and to measure it, but I cannot; I have absolutely no means of perceiving your mind. I judge by analogy that it exists, and the instinct which leads me to come to that conclusion is the social instinct, as it has been formed in me by generations during which men have lived together; and they could not have lived together unless they had gone upon that supposition. But I may very well say that among the physical facts which go along at the same time with mental facts there are forces at work. That is perfectly true, but the two things are on two utterly different platforms — the physical facts go along by themselves, and the mental facts go along by themselves. There is a parallelism between them, but there is no interference of one with the other. Again, if anybody says that the will influences matter, the statement is not untrue, but it is nonsense. The will is not a material thing, it is not a mode of material motion. Such an assertion belongs to the crude materialism of the savage. The only thing which influences matter is the position of surrounding matter or the motion of surrounding matter. It may be conceived that at the same time with every exercise of volition there is a disturbance of the physical laws; but this disturbance, being perceptible to me, would be a physical fact accompanying the volition, and could not be the volition itself, which is not perceptible to me. Whether there is such a disturbance of the physical laws or not is a question of fact to which we have the best of reasons for giving a negative answer; but the assertion that another man's volition, a feeling in his consciousness which I cannot perceive, is part of the train of physical facts which I may perceive, — this is neither true nor untrue, but nonsense; it is a combination of words whose corresponding ideas will not go together.

"Thus we are to regard the body as a physical machine which goes by itself according to a physical law, that is to say, is automatic. An automaton is a thing which goes by itself when it is wound up, and we go by ourselves when we have had food. Excepting the fact that other men are conscious, there is no reason why we should not regard the human body as merely an exceedingly complicated machine which is wound up by putting food into the mouth. But it is not *merely* a machine, because consciousness goes with it. The mind, then, is to be regarded as a stream of feelings which runs parallel to, and simultaneous with, a certain part of the action of the body, that is to say, that particular part of the action of the brain in which the cerebrum and the sensory tract are excited."

I have quoted Clifford at such length because it is really important that we should gain a distinct idea of the sort of reasoning that leads men to become adherents of the doctrine of parallelism, and from no writer can we gain it more clearly than from Clifford. Those familiar with the progress of modern psychological theory will see that, had he lived to the present day, he would probably have been inclined to modify his statements in a few particulars. He might, for example, have avoided the use of such a phrase as "the consciousness of the motor impulse." Such details are, however, of trifling importance here, and need not occupy our attention.

The first thing that strikes us is the close similarity of much of his reasoning to the argument of Descartes. Indeed, if we leave out of view the Cartesian soul with its definite place in the brain, we may almost say that Clifford's argument is a mere expansion of that of Descartes, and an expansion which has been made possible by the fact that we have gradually acquired a somewhat more detailed account of the functioning of the brain than was possessed by man in the seventeenth century. That the nervous discharge takes a short cut through the brain in the case of reflex movements and follows a circuitous path when movements are voluntary was then unknown.

It must be admitted, however, that the reader of Clifford's forceful paragraphs is in danger of supposing that we know more of the intimate structure and of the functioning of the brain than we actually do know. His cheerful optimism carries one along in an uncritical mood, and one has to remind oneself that such a

statement as, "two actions of the brain which occur together form a link between themselves, so that the one being called up the other is called up," does not rest upon an independent basis of direct observation, but is an inference from the fact of the association of ideas, at least in most instances. Much of Descartes' cerebral physiology was hypothetical, and it is not too much to say the same of the cerebral physiology of our own day.[1] In this reflection those who do not wish to accept the doctrine of the physical automaton may take such comfort as they can.

Again, the clear distinction which Clifford draws between mind and brain, his recognition of the fact that they must not be made members of the same series, is due to his appreciation of the fact that treating the soul as Descartes does simply turns it into a material thing. He follows Spinoza in insisting that mind and brain are things different in kind, and that they must not be unequally yoked together.[2]

But to gain a somewhat closer view of this parallelism between mental facts and physical, and to see the bridge that Clifford proposes to throw over the gulf which separates them, we must follow one more extract from the lecture we have been considering. It reads thus:[3] —

"Again, let us consider what takes place when we perceive anything by means of our eye. A certain picture is produced upon the retina of the eye, which is like the picture on the ground-glass plate in a photographic camera; but it is not there that the consciousness begins, as I have shown before. When I see anything there is a picture produced on the retina, but I am not conscious of it there; and in order that I may be conscious the message must be taken from each point of this picture along the special nerve-fibres to the ganglion. These innumerable fine nerves which come away from the retina go each of them to a particular point of the ganglion and the result is that, corresponding to that picture at the back of the retina, there is a disturbance of a great

[1] See my paper on "Psychology and Physiology," in the *Psychological Review* for January, 1896.

[2] Besides the internal evidence of the influence of Spinoza's thought furnished by Clifford's papers, "Body and Mind" and "On the Nature of Things-in-themselves," we have the direct testimony of his friend and biographer, Sir Frederick Pollock. See the introduction to the "Lectures and Essays."

[3] *Op. cit.*, pp. 61 ff.

number of centres of gray matter in the ganglion. If certain parts of the retina of my eye, having light thrown upon them, are disturbed so as to produce the figure of a square, then certain little pieces of gray matter in this ganglion, which are distributed we do not know how, will also be disturbed, and the impression corresponding to that is a square. Consciousness belongs to this disturbance of the ganglion, and not to the picture in the eye; and therefore it is something quite different from the thing which is perceived. But at the same time, if we consider another man looking at something, we shall say that the fact is this — there is something outside of him which is matter in motion, and that which corresponds inside of him is also matter in motion. The external motion of matter produces in the optic ganglion something which corresponds to it, but is not like it. Although for every point in the object there is a point of disturbance in the optic ganglion, and for every connection between two points in the object there is a connection between two disturbances, yet they are not like one another. Nevertheless they are made of the same stuff; the object outside and the optic ganglion are both matter, and that matter is made of molecules moving about in ether. When I consider the impression which is produced upon my mind of any fact, that is just a part of my mind; the impression is a part of me. The hall which I see now is just an impression produced on my mind by something outside of it, and that impression is a part of me.

"We may conclude from this theory of sensation, which is established by the discoveries of Helmholtz, that the feeling which I have in my mind — the picture of this hall — is something corresponding, point for point, to the actual reality outside. Though every small part of the reality which is outside corresponds to a small part of my picture, though every connection between two parts of that reality outside corresponds to a connection between two parts of my picture, yet the two things are not alike. They correspond to one another, just as a map may be said in a certain sense to correspond with the country of which it is a map, or as a written sentence may be said to correspond to a spoken sentence. But then I may conclude from what I said before that, although the two corresponding things are not alike, yet they are made of the same stuff. Now what is my picture made of? My picture is made of exceedingly simple mental facts, so simple that I only

feel them in groups.[1] My picture is made up of these elements; and I am therefore to conclude that the real thing which is outside me, and which corresponds to my picture, is made up of similar things; that is to say, the reality which underlies matter, the reality which we perceive as matter, is that same stuff which, being compounded together in a particular way, produces mind. What I perceive as your brain is really in itself your consciousness, is You; but then that which I call your brain, the material fact, is merely my perception. Suppose we put a certain man in the middle of the hall, and we all looked at him. We should all have perceptions of his brain; those would be facts in our consciousness, but they would be all different facts. My perception would be different from the picture produced upon you, and it would be another picture, although it might be very like it. So that corresponding to all those pictures which are produced in our minds from an external object, there is a reality which is not like the pictures, but which corresponds to them point for point, and which is made of the same stuff that the pictures are. The actual reality which underlies what we call matter is not the same thing as the mind, is not the same thing as our perception, but it is made of the same stuff. To use the words of the old disputants, we may say that matter is not of the *same* substance as mind, not homoousion, but is of *like* substance, it is made of similar stuff differently compacted together, homoiousion."

With the exception of this last bridge connecting mental facts with physical, Clifford regards the whole of what he has said as a body of doctrine accepted by all competent persons who have considered the subject. There may be, he thinks, some differences of opinion as to particular points, but the doctrine is the doctrine of Science; it is the doctrine of the parallelism of mental states to cerebral motions. This bridge, which cannot yet be considered to be a part of the accepted doctrine of science, but which Clifford regards as satisfactorily reaching from shore to shore, is *the identity of mind and brain.* Science must accept the fact that mind and brain are associated — that there is a parallelism; and since all the consciousness we know of is associated with certain complex

[1] I have in the foregoing omitted Clifford's argument to prove that consciousness is made up of these simple mental facts. It will be more convenient to discuss it later, and its omission here need not affect our conception of the sort of "bridge" he is essaying to build.

forms of matter, it seems reasonable to assume that there is no consciousness not associated with matter. We have here, however, only a provisional probability. But, on the other hand, the fact that mind and brain are associated in a certain definite way affords a strong presumption that we have here something that can be *explained*, a presumption that it is possible to find a *reason* for this exact correspondence. If such a reason can be found, we are no longer compelled to rest content with a provisional probability, but we have the highest assurance that Science can give us, an assurance amounting to practical certainty, that there is no mind without a brain.

Now, writes Clifford, if that particular explanation which he has ventured to offer should turn out to be the true one, the case becomes even stronger. If mind is the reality which appears to us as brain-action, then the supposition of mind without brain is a contradiction.[1] In the above-quoted extract the reader has met with the sentence, "What I perceive as your brain is really in itself your consciousness, is You." If we are to take such a statement at all literally, it is manifestly a contradiction to speak of mind without brain, for mind *is* brain. The two cannot be divorced because they are the same thing, and in the strictest sense of that ambiguous word same. But if we thus read Clifford, we cannot but see that his bridge is not so much a bridge as rather a denial of the existence of the gulf which it was proposed to bridge over. He seems to be arguing that two shores run parallel to each other, and must run parallel to each other because they are not really two shores, but are one and the same shore, and there is no gulf.

It is surely unfair to take Clifford's statements of the identity of mind and brain quite so literally. If mind and brain are strictly the same thing, it seems foolish to go on talking as though we had here two things. Parallelism itself disappears, for it is absurd to say that a thing is parallel with itself. And the reader who has followed carefully the statements contained in the last long extract which I have given cannot have failed to see that it was not intended to make mind and brain strictly identical with each other, but merely to make them identical in some looser sense of the word. Of course, the looser the sense in which the word is taken, the less clear is it that it is a contradiction to speak of mind without

[1] *Op. cit.*, p. 66.

brain, and the less sure are we of the solidity of the "bridge" which Clifford has built for us. That his own ideas about this "bridge" were decidedly nebulous seems clear even from what is said in the above-mentioned extract. It appears worth while to point this out briefly now, though the whole matter will have to be discussed later more thoroughly.

In the extract the *dramatis personæ* to whom we seem to be introduced at the outset are: an external object, which we will call a square; a retinal image of that object, which is also square; a disturbance of the ganglion, which we have no reason to believe square; and a mental image, which is a square. Consciousness, *i.e.* the mental image, belongs to the disturbance of the ganglion, and, as this is something quite different from the external object, consciousness also is something quite different from the external object.

In this scheme, there seems to be no doubt about the fact that the mental image is one thing and the external object another. There are even two things mentioned as between them in some sense of the word — the retinal image and the disturbance of the ganglion. No reason is apparent why this scheme should not serve, no matter what the particular character of the external object may be. That is to say, we have every reason to believe that an external brain will be related to the retinal image of the brain, to the corresponding disturbance of the ganglion, and to the mental image of the brain, just as an external square is to its retinal image, ganglionic disturbance, and mental image.

In the latter part of the extract, however, we learn with surprise that if we place a man's brain in the midst of a hall and look at it, our perceptions will not be identical with each other, but they will all be identical with the brain in question ("that which I call your brain, the material fact, is merely my perception"). The brain seen is thus not an external thing at all, and cannot be placed in the above scheme at two removes from the perception or mental image. It is the mental image itself; and now the external thing is not a brain, but something very different — it is some one else's consciousness ("what I perceive as your brain is really in itself your consciousness, is You").

The correspondence or parallelism, then, seems to be not between mind and brain, but between the mind of one man and the mind of another. But if this be so, why are we told that the actual

reality which underlies what we call matter is not the same thing as the mind, is not the same thing as our perception, but is made of the same stuff? Does this mean simply that when we have a perception which we call the *brain* of another man, we may assume that there corresponds to this, unperceived by us, certain other perceptions of various sorts that we may call the *mind* of the other man? But, even if we assume this to be true, does it not seem rather odd to say that certain perceptions in one mind are identical with certain more or less different perceptions in another — to say that "what I perceive as your brain is really in itself your consciousness"? It is this identity or quasi-identity of the two that furnishes Clifford with his "bridge." Can nothing better be said for this "bridge" than what is said in the preceding sentences?

As matters stand, there may be parallelism, but there seems to be no identity whatever except perhaps an identity of *kind*, and the "bridge" simply disappears. Yet there are few who read Clifford's pages without being impressed by the fact that there is at least some plausibility in his theory. The source of this plausibility I shall investigate in the next chapter, where I shall subject the conception of parallelism to a preliminary criticism, leaving out of view some of the difficulties which have come to the surface just above, and which it is convenient to reserve for later discussion.

CHAPTER XX

WHAT IS PARALLELISM?

In this chapter I shall assume that there is a world of material things, including human bodies, without inquiring very narrowly how we are to conceive this world, and in what sense it is external.

Descartes' study of the human body led him to believe, as we have seen, that the nervous system is more directly the organ of mind than is anything else in the body, and that the brain is, so to speak, the very citadel of the place. The modern science of cerebral psychology has continued the investigation which he began, and has continued it along the same lines. Although we may begin by speaking somewhat vaguely of mind and body, we always end, when we wish to be exact, by speaking of mind and brain, or rather of this or that mental phenomenon and this or that part of the brain. Infinite labor has been expended in the effort to determine with accuracy and in all possible detail the correspondences between mental activity and cerebral activity, and this labor has not been wholly without result. The localization of cerebral functions is not an empty phrase to any one who has examined the results which have so far been obtained.

The supposition that these results as a whole may, in the further progress of science, have to be abandoned, may be dismissed as unworthy of serious attention. They may undoubtedly be modified in detail, but we have every reason to believe that the method of research which has led to their formulation is a sound one, and that it will one day give us results far more complete and satisfactory. It is no more absurd to regard some particular manifestation of consciousness as related to the activity of some particular part of the brain, than it is to think of consciousness as related to the brain as a whole, instead of thinking of it as vaguely related to the whole body. And the same sort of evidence that inclines us to regard the brain as the special organ of conscious-

ness may incline us to particularize still more. How far we are justified in going is solely a question of evidence, and it is a rash man who will undertake to set an arbitrary limit to such investigations.

That the progress of science has ousted the Cartesian soul from its place in the pineal gland will be a matter of small regret to those who have given the subject adequate attention. That soul was not a soul at all; that is to say, it was not a consciousness, but was a material thing that could be located in this part of the brain or in that, like the veriest lump of matter. And any soul that the interactionist is inclined to put in its place must, since it is to take its place and become a cog in a material mechanism, be itself a material thing, and not a something of a different order.

He who truly realizes this loses his inclination to be an interactionist, and he casts about for some other way of conceiving the relation of mind and brain. He is pretty sure to become an adherent of the doctrine of parallelism, and to say with Professor Clifford and many others that physical phenomena and mental phenomena must not be conceived as patched together into one system, but must be conceived as belonging to different orders, must be relegated to separate series which never intersect one another. It is a fair question to ask: Just how much does a man mean by the word, when he speaks of physical phenomena and mental as being parallel? The word may, like most words, be abused, and its use may be an occasion of falling into more or less serious error.

One cannot follow the arguments which have led to the adoption of the doctrine of parallelism without assuming, at least provisionally, the existence of an external world of things and of minds perceived to be distinct from them. A material object exists; I perceive it; the object makes an impression upon the retina of the eye; as a result of this a certain disturbance is set up somewhere in the brain; I have a mental image of the object. The object is one thing, the impression upon the retina another, the cerebral change still another, and the mental image something distinct from all of these. Investigation seems to show that the mental image is more intimately related to the cerebral disturbance than to any other motion of matter, and we say that the mental image and the cerebral disturbance are *parallel*. How much have we a right to mean by this?

For one thing, we evidently mean that these two things are so related that the existence of the one may be taken as evidence of the existence of the other. Given the cerebral disturbance, the mental image is given; and given the mental image, the cerebral disturbance is given. The one may be taken as a sign or as a guarantee of the other.

We evidently mean, moreover, that the mental image does not belong to the same series with the cerebral disturbance, and hence cannot interact with it. Neither can cause the other; neither can be the effect of the other. Any attempt to put them in such a relation partakes, as Clifford expresses it, of "the crude materialism of the savage"; and although this relationship may be cloaked by ambiguity of expression or by inconsistency of statement, it becomes unmistakable when we try to conceive quite clearly just what interaction implies.

When this second point is borne well in mind, we realize that there are certain ways in which we must not think of the parallelism of the mental and the physical.

We must not conceive of a man's mind as lying beside his brain in space, as we do conceive of parallel lines as lying beside each other. We must not think of it as fitted to his brain as a gilt halo is fitted to the head of a saint in a picture by Fra Angelico. The warning is by no means superfluous, for the error appears to be a very easy one to fall into. We are all apt to talk as though the relation of mind and brain were more or less analogous to this; and when, before our classes, we attempt to make clear certain psychological facts by the aid of diagrams upon a blackboard, we place brains and ideas side by side, as though they really occurred side by side in nature. The endeavor to point out to the student that this diagrammatic representation is faulty is met by the triumphant query: "When a man goes to Europe, may we not assume that he takes his mind with him?"

And the man of science may deprecate dogmatism on the subject of mind and matter, and may declare himself to be without any hypothesis whatever, and yet we may find him, when he permits himself "to suggest a rough and crude analogy," writing as follows: "That the brain is the organ of consciousness is patent, but that consciousness is located in the brain is what no psychologist ought to assert; for just as the energy of an electric discharge, though apparently on the conductor, is not on the conductor

but in all the space round it; just as the energy of an electric current, though apparently in the copper wire, is certainly not all in the copper wire, and possibly not any of it; so it may be that the sensory consciousness of a person, though apparently located in his brain, may be conceived of as also existing like a faint echo in space, or in other brains, though these are ordinarily too busy and preoccupied to notice it."[1]

Thus certain cases of supposed thought-transference are rendered comprehensible by the suggestion that two saints may, so to speak, touch halos, and enter into a mystical spiritual communion. There is nothing in this conception that strikes the average man as inherently absurd, at least until he has thought the matter over with a good deal of patience, because his first impulse is always to put minds in space, where brains are. But when he realizes that the parallelism in question cannot be a spatial one, he begins to see that the relation of mind and brain is something that cannot be so easily grasped.

And if this relation is not a spatial one, we cannot assume that the mind is *present* to the brain in any ordinary sense of that word. If mind and brain really do belong to two different orders of existence which do not intersect, we cannot say that, when a given cerebral disturbance is present, a certain mental state is present, without admitting that we are using the word in a sense quite distinct from the usual one. We must remember that the mind is neither *in* the brain nor *near* the brain.

It is worth while to repeat over and over again, since it is so easy to become oblivious of the fact, the statement that my mind, which is supposed to be parallel to my brain and to no other, is not a whit nearer to my brain than it is to the brain of the Emperor of China or to that of the Pope of Rome. Of course, it is not further from my brain than from either of these, but it certainly is not nearer. Near and far have no meaning when we are not speaking of spatial relations; and when one thing is supposed to have a place in space and another is not, it is absurd to try to measure the distance between them. When, therefore, we speak of a mind and of a brain as being parallel, we must be most careful not to conceive of the mind and of the brain as present to each other in any ordinary sense of the word, or as near to each other. This is

[1] Professor Oliver J. Lodge, "Proceedings of the Society for Psychical Research," Part V, p. 191.

an important matter, for all sorts of strange results may follow from our allowing ourselves to fall into such confusions.

It must be admitted that it is exceedingly difficult to use language that will not suggest such confusions. No man tries more earnestly than Clifford to relegate mind and matter to different and distinct worlds. Yet when he speaks of a message carried from the eye to the brain, he tells us, "the mental fact does not begin anywhere before the optic ganglion."[1] A little farther on he says: "The mental fact is somewhere or other in the region *RCCB* of the diagram," which means that it is somewhere in the region of the optic thalami, the cerebral hemispheres, and the corpora striata. The body, he tells us, is not *merely* a machine, because consciousness "goes with it," and he reiterates that "mental facts go along with the bodily facts."[2] He informs us that the action which goes on in a brain may be looked at "from the mental side."[3]

Such statements may be so interpreted as not to be misleading, but there can be no question of what they suggest to the uncritical reader. There can, I think, be as little question of what they suggested to Clifford himself, and this I shall endeavor to bring out shortly. Meanwhile, I wish to insist upon the fact that those who talk of the parallelism of mind and brain constantly speak as though a particular mind and a particular brain were parallel in some physical sense, were near each other and could go together somewhat as do a man and his shadow — which illustration suggests to my mind a good instance of the fact that this really is the effect upon men's minds of reading the words of the parallelists. Professor James, after an examination of Clifford's doctrine, thus characterizes it: "The mind-history would run alongside of the body-history of each man, and each point in the one would correspond to, but not react upon, a point in the other. So the melody floats from the harp-string, but neither checks nor quickens its vibrations; so the shadow runs alongside the pedestrian, but in no sense influences his steps."[4]

Such misleading expressions are often used even by those who are ready to warn us that we must not be misled by them. Thus in an early work by Professor Bain we find the following: "All feelings have a *Physical Side*, or relation to our bodily organs; the sensations, for example, arise on the stimulation of a special organ

[1] "Lectures and Essays," London, 1879. "Body and Mind," p. 57.
[2] *Ibid.*, p. 58. [3] *Ibid.*, p. 59. [4] "Psychology," Vol. I, p. 133.

of sense; and both sensations and emotions have a characteristic outward display or expression, which indicates their existence to a spectator. I include in the description of each feeling whatever is known of its physical accompaniments. The feeling proper, or the *Mental Side*, has its relationships exhausted under the three fundamental attributes of Mind — Feeling, Volition, and Intellect."[1]

Manifestly, Professor Bain does not intend us to take such expressions as "mental side" and "physical side" at all literally, for he has already said only a few pages back: "It has always been a matter of difficulty to express the nature of this concomitance, and hence a certain mystery has attached to the union of mind and body. The difficulty is owing to the fact that we are apt to insist on some kind of *local* or space relationship between the Extended and the Unextended. When we think of connection it is almost always of connection in space; as in supposing one thing placed in the interior of another. This last figure is often applied to the present case. Mind is said to be *internal* to, or within, the body. Descartes localized mind in the pineal gland; the Schoolmen debated whether the mind is all in the whole body, or all in every part. Such expressions are unsuitable to the case. The connection is one of *dependence*, but not properly of local union."[2]

These sentences are sufficiently clear and unmistakable. They constitute a vigorous warning against the error of conceiving that a given mind "goes along with" a given body as his shadow goes along with a pedestrian. But the man who reads them forgets them when he comes to the account of the physical side and of the mental side of feelings. He then thinks of the concomitance of mind and body after a material analogy, and he draws from this, according to his humor, either an argument against parallelism or an explanation which seems to make parallelism the most natural thing in the world. This is a point of such importance that I must illustrate it at length.

First, as to the argument against parallelism. Professor James finds concomitance in the midst of absolute separateness an utterly irrational notion: "It is to my mind quite inconceivable that consciousness should have *nothing to do* with a business that it so faithfully attends. And the question, 'What has it to do?' is

[1] "Mental and Moral Science," London, 1868, p. 18. [2] *Ibid.*, p. 4.

one which psychology has no right to 'surmount,' for it is her plain duty to consider it. . . . If feelings are causes, of course their effects must be furtherances and checkings of internal cerebral motions of which, in themselves, we are entirely without knowledge. It is probable that for years to come we shall have to infer what happens in the brain either from our feelings or from motor effects which we observe. The organ will be for us a sort of vat in which feelings and motions somehow go on stewing together, and in which innumerable things happen of which we catch but the statistical result." [1]

It is evident that one who can conceive of motions and feelings as stewing together in the same vat has not distinguished them as belonging to different orders. They are both in the one vat, *i.e.* they are both material, and the problem of their relation to each other cannot be a serious one. As an interactionist, Professor James has, of course, the right to make mind material if he wishes to do so. But the part of the above extract in which we are especially interested is that which preceded his casting feelings into the vat. He speaks of consciousness *attending* cerebral changes, and he finds it inconceivable that it should so faithfully do this unless there be some causal connection between them. It is interesting to inquire: Why does this seem to him an inconceivability? Why does something else seem to him more *natural?*

To this question I think that but one answer can be given. Professor James is aware that the parallelist would be shocked to think of feelings and motions as "stewing together," and that he tries to conceive of them as belonging to distinct and independent orders. Yet he hears him speak of a concomitance, of a parallelism, of feelings and motions as "going along together." He thinks of the consciousness that *attends* cerebral changes as attending them as a man's shadow attends him. The shadow moves when the man moves, stops when he stops, and reproduces with slavish exactitude all the eccentricities of his behavior. Is it conceivable that such a parallelism should exist in the absence of all causal connection? What becomes of the method of concomitant variations if men and their shadows may be regarded as so faithfully attending each other when united by no bond of causality? Must we repudiate the illustration of the moon and the tides, and all the other classical examples upon which our minds have been nourished

[1] "Psychology," Vol. I, pp. 136–138.

ever since the publication of Mill's "Logic"? If we accept concomitance as evidence of some sort of causal connection everywhere else, why not accept it when we come to consider the concomitance of feelings and cerebral changes?

Were the two kinds of concomitance the same, there could be no question of the justice of the argument. But the tacit assumption that they are the same ought not to be allowed to pass without challenge. *If the parallelist is right*, feelings must not be assigned any local habitation whatever. They are not in the brain; they are not even near the brain; they do not move about when the brain moves, nor stop moving when it stops. Feelings parallel to one brain are quite as much in or on or about another brain as they are in or on or about it.

This is a truth that it is difficult for the psychologist to bear steadfastly in mind. He says to us: "Take a sentence of a dozen words, and take twelve men and tell to each one word. Then stand the men in a row or jam them in a bunch, and let each think of his word as intently as he will; nowhere will there be a consciousness of a whole sentence."[1] But if minds are not in space and must not be conceived as localized at all, why bring the men together? The minds are not farther apart if the men be conceived as distributed over four continents. Nearness of body has nothing whatever to do with nearness of mind. It is only when we localize, *i.e.* materialize, mind, that we are inclined to think that when two men stand near to each other their minds must be near to each other too.

The concomitance of mind and brain is, then, conceived by the parallelist, when he is true to his doctrine, to be a concomitance of a quite peculiar kind, and one to which no parallel can be found anywhere else. It is absolutely unique.

When we connect the motion of the moon with the flow of the tides, we are dealing exclusively with a mechanical order of things, and we are assigning to certain motions in matter their place of antecedent and consequent in that mechanical world-order. All the positions and motions of matter with which we are concerned belong to the one order, and are clearly susceptible of connection into one series. But when we think of certain mental phenomena as concomitant with the changes in a given brain, we are not justified in assuming that this implies that the phenomena of the two

[1] James, "Psychology," Vol. I, p. 160.

orders can be arranged in the one series. He who assumes this simply overlooks the fact that he has distinguished between two orders of things, and he reduces them to one. As well endeavor to arrange in the same series changes in the position of a moon and changes in the position of the drops of water which compose a tidal wave, when, by hypothesis, the space in which the one series of changes takes place is not continuous with that which is the scene of action of the other.

When Professor James argues that concomitance must be regarded as evidence of causal relationship, he is evidently thinking of physical concomitance, and what force the argument seems to have is borrowed from a confusion of concomitance of this kind with concomitance of a very different kind. When one clearly realizes that the consciousness which "attends" the molecular changes in a particular brain is not there where the brain is, and is no nearer to this particular brain than it is to any other, one is less inclined to stitch this consciousness and this brain into the one motley garment. It is difficult to think of things "stewing together," when we realize that they cannot by any possibility be forced into the same pot.

But this tendency to conceive of the relation of mind and brain after a material analogy is like the conjurer's hat out of which may be drawn objects the most discrepant and incongruous. We have seen it yield an argument against parallelism and for interactionism. Those who have followed the history of speculative thought have seen emerge from it again and again a most plausible argument for parallelism, the *explanation*, in fact, which to many minds makes the parallelism of mental phenomena and physical phenomena seem a natural and even a necessary thing. This argument has its roots in a remote past, and it has influence with us because we inherit the conceptions which have come down from the days of our fathers and find it difficult to subject them to criticism.

Descartes informs us that certain things may be known immediately by the "natural light" — among others, that where there are qualities or affections there must be a *thing* or *substance* to which these pertain. The same natural light reveals to us that we know a thing or substance the more clearly as we discover in it a greater number of qualities.[1] These notions are not, of course, of his own manufacture. They came to him from the centuries

[1] "Principia Philosophiæ," I, 11.

which preceded him, and they were hoary with age when he received his instruction as a schoolboy at La Flèche.

He goes on to tell us that every substance has one principal attribute. Thus, thinking is the principal attribute of mind, and extension is the principal attribute of body. The principal attribute constitutes the nature or essence of the substance.[1] We must, hence, conceive thought and extension to be the natures of intelligent and corporeal substance; and we must even conceive them as the thinking and extended substances themselves, as mind and body. To abstract the notions of thought and extension from the notion of substance is difficult, for the distinction is a merely logical one (*ipsa ratione tantum diversæ sunt*).[2] The notion of substance — that which needs nothing but itself in order to exist — can be applied in all strictness only to God, but we may call mind and body substances in a looser sense of the word.[3]

Here we find material which Spinoza, the first parallelist, built into the structure which he reveals to us in the "Ethics," and this material constitutes a most important element in its composition. Spinoza tells us of one substance, consisting of an infinity of attributes, only two of which, thought and extension, are revealed to us. Each attribute expresses the essence of the one substance. The distinction between the attributes and the substance Spinoza nowhere makes clear, but the substance is supposed in some way to unify the attributes. The modes of the attribute extension are individual material things; the modes of the attribute thought are individual ideas. These two sets of modes constitute two independent systems; everything in the world of material things must be explained by a reference to physical causes, and ideas must find their complete explanation in the world of ideas. An idea cannot be caused by a motion in matter, nor can it result in such.

Notwithstanding the fact that ideas and material things belong to mutually independent systems, the world of thought exactly mirrors the world of extension. Each corporeal thing has corresponding to it a mental thing that we may call its idea, and "the order and connection of ideas is the same as the order and connection of things." But, we may ask, why should ideas and things thus correspond? How are we to explain this concomitance in the absence of causal connection? Spinoza's answer — the only an-

[1] "Principia Philosophiæ," I, 53. [2] *Ibid.*, I, 63. [3] *Ibid.*, I, 51.

swer he has to give to the question — is contained in the scholium to the proposition just quoted. It reads as follows: —

"Before going farther we should recall to mind this truth, which has been proved above, namely, that whatever can be perceived by infinite intellect as constituting the essence of substance belongs exclusively to the one substance, and consequently that thinking substance and extended substance are one and the same substance, apprehended now under this, now under that attribute. So, also, a mode of extension and the idea of that mode are one and the same thing, but expressed in two ways — a truth which certain of the Hebrews appear to have seen as if through a mist, in that they assert that God, the intellect of God, and the things known by it, are one and the same. For example, a circle existing in nature, and the idea, which also is in God, of this existing circle, are one and the same thing, manifested through different attributes; for this reason, whether we conceive nature under the attribute of extension, or under that of thought, or under any other attribute whatever, we shall find there follows one and the same order, or one and the same concatenation of causes, that is, the same thing." [1]

From the metaphysics of Descartes and Spinoza to the speculations of the modern scientist may seem a far cry to some; yet, as regards the point under discussion, the distance is so inconsiderable that it scarcely needs to be spanned by a bridge at all. The notion of substance as a something "underlying" qualities, "having" qualities, "explaining the coexistence" of qualities, has made its appearance for many centuries in philosophies the most diverse, and has made its influence felt unmistakably. Even in writers like Descartes and Spinoza, in whose pages the distinction between substance and attributes becomes almost a vanishing one, substance remains as a ghost with a mission.

Spinoza's ghost is taken over bodily (*sit venia verbo*) by Clifford, of whom we think as the typical modern parallelist, together with Spinoza's parallelism; and it is made to perform the same function which busied it in the seventeenth century. It serves to join, by

[1] "Ethics," II, 7, scholium. Spinoza's philosophy is a confluence of distinct and different streams. I have indicated only the one whose current seems to bring down to us an explanation of the parallelism of mind and body. For a fuller discussion of the subject, I must refer the reader to my "Philosophy of Spinoza," Henry Holt and Co., N.Y., 1894, Introductory Note, and notes 3 and 55; also to my monograph on "Spinozistic Immortality," Ginn and Co., 1899, §§ 1–15.

the laying on of its shadowy hands, what would otherwise be kept asunder. When we bear this in mind, the somewhat incoherent statements in which Clifford describes for us the "bridge" which he has essayed to build between matter and mind become comprehensible. As long as we only know the fact that consciousness and cerebral disturbances run parallel, we cannot be sure that some exception to the rule will not be discovered. But if we find an *explanation* for this parallelism, we may enjoy the highest assurance that science can give that there will be no exception. Behold the explanation: Consciousness and cerebral change are the *same thing;* it is, hence, absurd to think of them as divorced.

But how can they be the same thing when they cannot even exist in the same world, but must be relegated to different orders? They can be the same thing thus: "The reality which underlies matter, the reality which we perceive as matter, is the same stuff which, being compounded together in a particular way, produces mind. What I perceive as your brain is really in itself your consciousness, is You; but then that which I call your brain, the material fact, is merely my perception."[1] "If mind is the reality or substance of that which appears to us as brain-action, the supposition of mind without brain is the supposition of an organized material substance not affecting other substances (for if it did it might be perceived), and therefore not affected by them; in other words, it is the supposition of immaterial matter."[2] "The reality external to our minds which is represented in our minds as matter is in itself mind-stuff."[3]

Now when Spinoza informs us that a circle in nature and the idea of that circle are the same thing, we know very well that he cannot mean to have us understand that they are the same in the strictest sense, for he finds it necessary to explain that they are the same thing "manifested through different attributes." He assures us that they have nothing in common, that they are not even alike, for a circle has a centre and a circumference, while the idea of a circle has neither centre nor circumference.[4] They are only the same thing in that the substance underlying them is the same. That is to say, *they themselves are not the same, but something else is the same with itself.*

[1] "Lectures and Essays," London, 1879, Vol. II, pp. 63, 64.
[2] *Ibid.*, p. 66. [3] *Ibid.*, p. 87.
[4] "De Intellectus Emendatione," ed. Van Vloten and Land, 1882, p. 11.

When we examine Clifford's work, we find that this is precisely his thought also. He is evidently speaking carelessly when he says, "What I perceive as your brain is really in itself your consciousness, is You," for if there is one thing upon which he wishes to insist more earnestly than upon anything else, it is the fact that your consciousness cannot by any possibility find a place among my perceptions. It is an *eject*, an *outcast*, and it has no right to a place in the world of *objects*. To identify it, then, with any *object*, is to talk nonsense, as he tells us again and again. It is clear, then, that he must mean the above statement of the identity of object and eject to be taken in a Pickwickian sense. It is the "reality" or "substance" that is one; your brain and your consciousness are two distinct things.

The distinction between substance and phenomenon is not more clearly drawn by Clifford than by Spinoza; he is evidently using vaguely a vague word which he has inherited, with its burden of associations, from the past. He is not as impartial as Spinoza, for he evidently inclines in the above extracts to make the substance or reality identical with one set of phenomena while regarding the other set as *mere* phenomena. But in this eccentricity he cannot be wholly consistent, for if he were, his "bridge" would be lost. He would have nothing to join the two sets of phenomena; he would have the two sets of phenomena alone, and the question would remain, Why do they go together? The words "substance" and "reality" with their associations constitute the very being of his "bridge," and he must not and does not wholly rob them of their meaning.

The same bridge is found satisfactory by others. I may cite, as a typical instance, Professor Höffding, an excellent writer, and one who cannot be accused of a lack of sympathy with the results of modern science. He reasons as follows: —

"If it is contrary to the doctrine of the persistence of physical energy to suppose a transition from the one province to the other, and if, nevertheless, the two provinces exist in our experience as distinct, then the two sets of phenomena must be unfolded simultaneously, each according to its laws; so that for every phenomenon in the world of consciousness there is a corresponding phenomenon in the world of matter, and conversely (so far as there is reason to suppose that conscious life is correlated with material phenomena). The parallels already drawn point directly

to such a relation; it would be an amazing accident if, while the characteristic marks repeated themselves in this way, there were not at the foundation an inner connection. Both the *parallelism* and the *proportionality* between the activity of consciousness and cerebral activity point to an *identity* at bottom. The difference which remains, in spite of the points of agreement, compels us to suppose that one and the same principle has found its expression in a double form. We have no right to take mind and body for two beings or substances in reciprocal interaction. We are, on the contrary, impelled to conceive *the material interaction* between the elements composing the brain and nervous system, *as an outer form of the inner ideal unity of consciousness.* What we in our inner experience become conscious of as thought, feeling, and resolution, is thus represented in the material world by certain material processes of the brain, which as such are subject to the law of the persistence of energy, although this law cannot be applied to the relation between cerebral and conscious processes. It is as though the same thing were said in two languages." [1]

Again the "same thing"! Evidently this same thing is neither *inner* nor *outer*. It is not to be confused with either "form of expression," but it is something distinct from both. Thoughts are not identical with cerebral activities, but the one substance underlies the two. How does it come that we are inclined to regard this underlying something as furnishing a satisfactory explanation of the concomitance of things so disparate? What is the key to the magic of the word "substance," which acts as an opiate upon the restless questionings of so many eager minds?

To solve this problem we have only to turn to the notion of substance as it exists in the mind of the plain man to-day. It is much the same that it has been for centuries, and it does not differ greatly from that which has lurked in comparative obscurity in the minds of many philosophers who have thought that they had abandoned it for something better. No man has given a better account of the plain man's notion than John Locke, and it is a sympathetic account, for Locke casts in his lot here with the plain man: —

"The mind being, as I have declared, furnished with a great number of the simple ideas, conveyed in by the senses, as they are found in exterior things, or by reflection on its own operations, takes notice also, that a certain number of these simple ideas go

[1] "Outlines of Psychology," English translation, London, 1891, pp. 64, 65.

constantly together; which being presumed to belong to one thing, and words being suited to common apprehensions, and made use of for quick despatch, are called so united in one subject, by one name; which, by inadvertency, we are apt afterward to talk of, and consider as one simple idea, which indeed is a complication of many ideas together: because, as I have said, not imagining how these simple ideas can subsist by themselves, we accustom ourselves to suppose some *substratum* wherein they do subsist, and from which they do result, and which therefore we call substance."[1]

It is thus that we come to have the ideas of a man, a horse, gold, water, etc., of which substances "whether any one has any other clear idea, further than of certain simple ideas coe . ng together, I appeal to every one's experience." Locke is a . . of sense. He knows that men call a bit of wood a *thing* or *substance* because they have experience of the fact that a certain group of qualities coexist *hinc et nunc*, and that one such group is not to be confounded with another. He knows, too, that they talk as though they were not here dealing with a complex of experien s, but with "one simple idea." Finally, he knows that they e unwilling to regard the bundle of experiences as the whole c thing, but attribute to them some obscure source or cause h they regard as the substance or even as the "thing." He do ot pretend to know anything about this substance, and he calls attention as clearly as one could wish to the fact that men only assume it to exist because they observe that certain qualities "go constantly together." One need not be a Lockian to see the justice of this analysis. One may agree with the plain man, or one may scout his notion of substance; but the fact that he thinks of the thing in this way it is not reasonable to deny.

Now it is important to notice that neither the plain man nor the philosopher pretends to know the substance except through its qualities. The conception of substance is, at bottom, but a recognition of a certain concomitance of phenomena. When we see an apple we can also touch it, taste it, smell it. Why can we? Because the apple is there, the one apple, the reality, the substance, the underlying something that manifests itself to the various senses in these divers ways. How do we know that the one apple is there? Because we can see it, touch it, taste it, smell it. Thus the concomitance of the phenomena *guarantees* the

[1] "Essay Concerning Human Understanding," Book II, Chapter 23, § 1.

existence of the substance, and the presence of the substance *explains* the concomitance of the phenomena.

It is not possible for a man to walk around in a much smaller circle than this, yet many persons walk around in this circle with a good deal of satisfaction to themselves. As we watch them do it, a little reflection brings us to a realization of the fact that their behavior is not so wholly irrational as it appears on the surface. Their explanation of the concomitance of phenomena by their reference to a substance is nothing more nor less than a reference of this particular case of concomitance to the innumerable other cases of a similar concomitance furnished by their experience as a whole. The individual instance has been *explained* by being brought under a general law, as all individual instances of any sort must be in order to be explained.

We can now understand clearly just how much force we ought to allow to Clifford's argument that consciousness and cerebral activity not only go together, but *must* go together. He has discovered that they are one and the same thing — not strictly one and the same thing, but one and the same as two manifestations of one and the same substance are one and the same. Stripped of its mysticism and of all needless obscurity, this statement amounts to just this: The concomitance of consciousness and cerebral activity is not an inexplicable thing to which no parallel can be found in our experience; it is simply an instance of the concomitance of "aspects" or "manifestations" which we find all about us when we are dealing with "substances," "things," or "realities." It is one of a class, not an isolated instance. In other words, mind and brain are related as are the color and smell of the apple.

Nothing can be clearer than that Clifford has quite forgotten how widely his doctrine has separated mind and brain. It puts them in different and independent worlds. What would we think of the concomitance of the qualities which constitute our notion of an apple, if the color always appeared in one mind, the taste in another, the smell in a third, and the tactual qualities in a fourth, the group as a whole never making its appearance in any one consciousness?

Evidently Clifford's "bridge" rests upon an obliteration of the distinction between mind and brain. His argument conceives of the concomitance of mind and brain after a material analogy; and

we are inclined to view it as satisfactory only because the natural man is ever ready to materialize mind, to think of it as being there where the brain is, and as related to the brain somewhat as the one side of a door is related to the other.

"It would be an amazing accident," writes Höffding, "if, while the characteristic marks repeated themselves in this way, there were not at the foundation an inner connection." Why this amazement? Clearly because Höffding assumes that we have abundant evidence, in our experience, of the fact that where there is invariable concomitance there is "inner connection," *i.e.* there is substantial identity. But what if the concomitance of mind and brain be of a startlingly different sort from that observed in all these instances? what if it be a something unique in our experience? Can we assimilate it to the other instances and regard it as *explained*, simply by invoking the magic of the word "substance"? When we do this, we are explaining concomitance of one sort here, by pointing out that there is concomitance of a wholly different sort there, and that there are many instances of the latter. We see instances of concomitance on every hand; what more natural, says Höffding, than that there should be concomitance of mind and brain. In any such argument the uniqueness of the latter kind of concomitance is allowed to drop quietly out of sight: concomitance is concomitance — and the nakedness of our fallacy is hidden from our view by a whole apron of fig leaves, such as "substance," "underlying reality," "identity at bottom," "inner connection," "aspects," "inner and outer," "parallelism," and the like.

Every one of these carries with it materialistic suggestions, just such suggestions as Clifford was most anxious to strip away from his notion of mind. If we make the concomitance of "object" and "eject" seem natural by using vague words which surreptitiously assimilate "ejects" to "objects," we are solving our problem by annihilating it. It is not worth while to point out at great length that a given fact is unique, and then to expend our ingenuity in showing that it is not unique at all, but may be assimilated to a multitude of other facts and thus given an explanation.

The materialistic suggestion in Clifford's words is quite unmistakable: "The reality which underlies matter, the reality which we perceive as matter, is the same stuff which, being compounded

together in a particular way, produces mind. What I perceive as your brain is really in itself your consciousness, is You; but then that which I call your brain, the material fact, is merely my perception." *Where* is the reality which we perceive as matter? *Where* are you, while I am perceiving your brain? Are you not out there, where I seem to perceive the brain? If you are not in this direction from my body rather than in that, if you are no nearer to this particular brain than to the brain of a man I never saw and never shall see, how comes it that I am perceiving *you*, that you are affecting *me*, when I see this brain? Is the reality or substance of the brain not to be found where the brain is? Surely the reader can see that Clifford's words draw all their force from a materialistic "outside" and "inside" conception. We have here the philosophy of the plain man forced to do service in a new field, but equipped with all its old arms and accoutrements.

The "bridge," then, that is to unite consciousness with cerebral activities turns out to be no better than a materialistic misconception. So far from explaining parallelism, if parallelism be rigorously adhered to, and mind and brain really kept distinct, it must fall. Thus we see that, whether we read the works of the antiparallelists or the works of the parallelists, we must be on our guard against being misled into conceiving of parallelism in a materialistic way, *i.e.* into virtually denying its existence. It is not easy to use language which may not suggest error; the very word "parallelism" has associations which the doctrine that passes by that name is called into being to deny, though it is perhaps a trifle less objectionable than the various other words which may be made to serve the same purpose. Our only safety lies in not allowing ourselves to be influenced by the associations which cling to words, but in compelling ourselves to bear in mind just how much a word ought to mean when it is put to a particular use; that is to say, we are only safe when we bear in mind just how far our facts go. This is a sort of empiricism to which no reasonable man can object. It is, of course, a sort of empiricism that it is by no means easy to carry consistently into effect.

It may be objected that the doctrine of parallelism loses both its plausibility and its attractiveness when it is thus rigorously understood. The cerebral change is admitted to be a sign of the mental phenomenon, but sign and thing signified are relegated to orders of things so different, that all of those figures of speech by

the aid of which we ordinarily grasp the significance of the relationship are banished. We seem to ourselves to realize with a good deal of vividness what is meant by the parallelism of mind and brain so long as we are permitted to conceive the two as phenomena of the one substance, as manifestations of the same underlying reality, as aspects of one thing, as at bottom identical, as having an inner connection, etc. If we lose these phrases, how shall we conceive it? Minds and bodies seem to float apart, and the imagination is left brooding upon a void.

But in considering this objection it is well to remember that it is not merely against the doctrine of parallelism that it can be brought. Material analogies have always been pressed into the service of the attempt to conceive clearly what is assumed to be not material. How can it be otherwise? The very words we use to denote mental functions of every description have been exhumed from the soil, torn from the world of matter, and they have been transported to another sphere still reeking with earthly odors. It is only the purgatorial fires of reflection that can purge these away, and they sometimes seem unequal to the task. Of what absurdities may one not be guilty when one has described consciousness as an "internal light"?[1] What is suggested to the mind by the word "intuition"?[2] When we speak of consciousness as an "agent,"[3] where do we get the meaning of the word? What fallacies may not lurk behind the ambiguity of the phrase "direction of the attention"? That one should always and under all circumstances keep one's mind free from the materialistic associations of such forms of expression, it is too much to expect, but it does not seem unreasonable to expect a man to exercise a jealous watchfulness lest he be tripped up by them.

So it is with parallelism. For the purposes of common life, and for the purposes of many special psychological investigations, it may matter little that a man loosely conceives of mind and brain as "manifestations," "aspects," or "sides." But if he takes such conceptions seriously, and builds a theory upon them, he is building upon sand. A man is not in duty bound to be a metaphysician at the breakfast table, but when he does set out to be a metaphysician, he ought to be a good one.

[1] Hamilton, "Lectures on Metaphysics," XI.
[2] McCosh, "First and Fundamental Truths," Part I, Chapters I–IV.
[3] Green, "Prolegomena to Ethics," § 32.

CHAPTER XXI

THE MAN AND THE CANDLESTICK

So much for the general conception of parallelism and its justification through the assumption of an "inner identity." It is now time that we ask ourselves how the parallelist may know that mind and matter are parallel, even as a matter of "brute fact." The reflective reader will see that, as in the "Thousand-and-one Nights" the Story of the Little Hunchback leads on to the Story of the Christian Merchant, and that to the Story of the Sultan's Purveyor, so Clifford's exposition of the doctrine of parallelism, as found in the essay on "Body and Mind," leads naturally to the Story of the Man and the Candlestick. Certain difficulties, which enter and make their bow in the first essay, must be allowed to speak their lines in the second, and must step out into the glare of the footlights, that they may be inspected by the audience.

We have seen that the argument for the parallelism of consciousness and cerebral activity carefully distinguishes between the external object, the retinal image of that object caused by rays of light from it entering the eye, the cerebral image due to the disturbance of the retina, which cerebral image exists in the region of the optic thalami, and the mental image, which constitutes the perception of the object. These four appear to be quite distinct from each other, and to be divisible into two widely different classes.

The external object, the disturbed retina, and the stimulated ganglion belong to the one class. They are all matter in motion. They stand to each other in relations of causality, and the investigation of the conditions of all three falls within the province of the science of mechanics. The mental image, on the other hand, stands by itself. It cannot be given a place in the same series with the others, but it is "parallel" to one of them, to the cerebral image. It is not *caused* by the disturbance in the ganglion, but first comes into being with it. It is mind, the other three are mat-

ter, and between mind and matter there is a gulf fixed. The only point at which there is any hope that a "bridge" may be thrown across the gulf is at the cerebral disturbance, for there the mind seems to come, if one may use such a phrase, *nearest* to matter. Let *O* represent the object, *RI* the retinal image, *CI* the cerebral image, and *MI* the mental image, and we may express the relations of the four to each other thus: —

$$O \text{ —— } RI \text{ —— } \frac{CI}{MI}$$

We are to conceive *O*, *RI*, and *CI* as belonging to an order of things in which *MI* can find no place. It can only be parallel to something which has a place in that order.

But even in the essay in which Clifford so carefully fixes these distinctions, there occur certain sentences which seem to obliterate them and to confuse the scheme. Thus we are told that "that which I call your brain, the material fact, is merely my perception."[1] Does this mean that *O* is not an inhabitant of a different sphere from that inhabited by *MI*? Does it mean that it is *identical* with *MI* — not identical in the loose sense in which men use the word when they speak of one thing as being the "substance" or "underlying reality" of something else, but identical in a strict sense? If *O* is not something external, but is really my perception, *i.e.* is *MI*, then what is the relation of *CI*, which is supposed to be in the same world with it, and to be a thing of the same kind, to the *MI* with which it is assumed to be parallel — with which, we seem justified in saying, it has been *proved* to be parallel, if the argument for parallelism has any weight at all?

The difficulty here suggested does not have to be hunted out from its cover, but stalks boldly into the open and menaces us of its own accord, in Clifford's essay "On the Nature of Things-in-themselves": —

"Suppose that I see a man looking at a candlestick. Both of them are objects, or phenomena, in my mind. An *image* of the candlestick, in the optical sense, is formed upon his retina, and nerve messages go from all parts of this to form what we call a *cerebral image* somewhere in the neighborhood of the optic thalami in the inside of his brain. This cerebral image is a certain complex of disturbances in the matter of these organs; it is a mate-

[1] "Lectures and Essays," Vol. II, p. 64.

rial or physical fact, therefore a group of my possible sensations, just as the candlestick is. The cerebral image is an imperfect representation of the candlestick, corresponding to it point for point in a certain way. Both the candlestick and the cerebral image are matter; but one material complex *represents* the other material complex in an imperfect way.

"Now the candlestick is not the external reality whose existence is represented in the man's mind; for the candlestick is a mere perception in *my* mind. Nor is the cerebral image the man's perception of the candlestick; for the cerebral image is merely an idea of a possible perception in my mind. But there *is* a perception in the man's mind, which we may call the *mental image;* and this corresponds to some external reality. *The external reality bears the same relation to the mental image that the (phenomenal) candlestick bears to the cerebral image.* Now the candlestick and the cerebral image are both matter; they are made of the same stuff. Therefore the external reality is made of the same stuff as the man's perception or mental image, that is, it is made of mind-stuff. And as the cerebral image represents imperfectly the candlestick, in the same way and to the same extent the mental image represents the reality external to his consciousness. Thus in order to find the thing-in-itself which is represented by any object in my consciousness such as a candlestick, I have to solve this question in proportion, or rule of three: —

As the physical configuration of my cerebral image of the object,
is to the physical configuration of the object,
so is my perception of the object (the object regarded as complex of my feelings)
to the thing-in-itself."[1]

It is extremely desirable that we should get these several entities and their relations quite clear. According to the parallelistic scheme, we may try to represent them in the following formula: —

$$\frac{C'I'}{M'I'} \text{ —— } R'I' \text{ ..... } O \text{ ..... } RI \text{ —— } \frac{CI}{MI}$$

[1] *Op. cit.*, pp. 85, 86. It is not necessary to suppose that Clifford occupies a different standpoint in his two essays. The essay on "Body and Mind" was printed in the *Fortnightly Review*, December, 1874; that on "The Nature of Things-in-themselves" was printed in *Mind*, January, 1878, but it had been read before the "Metaphysical Society" in 1874. See Pollock's Introduction, Vol. I, p. 39.

Here *O* is the candlestick, or object; *RI* is the man's retinal image, *CI* his cerebral image, *MI* his mental image; similarly *R'I'* is my retinal image, *C'I'* my cerebral image, and *M'I'* my mental image or perception. We have, thus, before us an object, the candlestick at which the man is looking, two brains, and two minds, or, at least, two perceptions, which are parallel to the two brains.

But in this formula we look in vain for one of the things mentioned in the above extract, — the *X* which is to be discovered by the aid of the mathematical proportion with which the extract ends, the truly *external* object. To understand the significance of this object we have to bear in mind that Clifford does not regard brains as the only things in nature that have psychic parallels. He looks upon all nature as animated, *i.e.* he believes that just as minds correspond to cerebral activities, so something akin to consciousness, something more or less like it, *mind-stuff* corresponds in the same way to all motions in matter. "A moving molecule of inorganic matter does not possess mind or consciousness; but it possesses a small piece of mind-stuff. When molecules are so combined together as to form a film on the underside of a jelly-fish, the elements of mind-stuff which go along with them are so combined as to form the faint beginnings of sentience."[1]

Even such a thing as a candlestick has, accordingly, we will not say a mind, but, at all events, a certain amount of mind-stuff. But Clifford regards a man's mind as the reality which we perceive as his brain, as the thing that we must conceive as truly *external*. The mind-stuff of the candlestick, and of every material object, must be granted a similar externality. It is the "reality" of the material thing; it is the thing-in-itself, as contrasted with the thing as perceived, the merely material.[2] If we take all these rudimentary souls into account, we must amend our formula as follows: —

$$\frac{C'I'}{M'I'} \text{ —— } \frac{R'I'}{E''I''} \text{ ..... } \frac{O}{EI} \text{ ..... } \frac{RI}{E'I'} \text{ —— } \frac{CI}{MI}$$

That is to say, we must recognize a world of material things, which belong to the one order and interact with each other according to the laws of mechanics; and we must recognize that each material thing has as its parallel a psychic thing, which belongs to

[1] *Op. cit.*, p. 85. [2] *Op. cit.*, p. 87.

a different order. Thus *O*, the material candlestick, has as its parallel *EI*, an external image — which I call an image, not because it resembles *O*, but because it is supposed to be a thing of the same general nature as *MI* and *M'I'*, and which I call external because we are here looking at it from the point of view of the two latter.

It is worthy of note that the entities in the lower line are not supposed to form *one system* as do those in the upper. This is evident from the fact that *CI* is explained by a direct reference to *RI*, and *RI* by a direct reference to *O*. No descent to the lower line appears to be necessary. But *EI* can only be reached from *MI* by passing through *CI* and *O*. It is by this road and by this alone that Clifford proposes to reach it.

I need not stop here to weigh all the considerations that induced Clifford to distribute minds or something like minds to all objects in nature. Of course, had he held a nervous system to be the essential concomitant of mind, there could have been no question as to the existence of the *EI* which is supposed to constitute the external candlestick. On such a supposition there is no external candlestick, in this sense of the word "external," and the question in proportion becomes meaningless. But when a man has made mind the *reality* of brain, the substance which makes itself apparent as brain, the step is a short one to the attribution of minds of some sort even to candlesticks. Mind is the reality or substance which manifests itself as brain; candlesticks are manifestations, they *appear* just as brains do; must there not be, in this case also, some reality that is making its appearance? What can it be? It must be mind, of course, or at least mind-stuff, for the only reality which we know directly is mind. Once make mind the reality of material things, and it seems absurd to deny that any material thing has some sort of a mind, for surely everything material has some sort of reality.

If we reason thus, and assume that there must be an external candlestick other than *O*, the manifestation, — if we reason that there exists also *EI*, the reality underlying that manifestation, — then Clifford's proposed method of discovering that reality, seems, on the surface at least, a plausible one. *C''I'*, my cerebral image, is a manifestation, a material thing; its reality is my mental image, *M'I'*. And *O* is a manifestation, a material thing; its reality is *EI*. If *C''I'* and *O* were exactly alike, it would seem natural to

expect *M'I'* and *EI* to be exactly alike too, for where there is no difference in two manifestations, it seems natural that there should be no difference in the two underlying realities. But *C'I'* and *O* are not exactly alike. We may assume, then, that as *C'I'* is to *O*, so is the reality of *C'I'*, *i.e.* my mental image, to *EI*, the reality of *O*.

Of course, even those who have no theoretical objection to Clifford's way of reaching *EI* must admit that, in the existing state of our knowledge, it is of no value whatever, for the simple reason that no man knows how *C'I'* and *O* differ. *C'I'* is "an imperfect representation of the candlestick, corresponding to it point for point in a certain way," but in what sense it is imperfect and how imperfect it is, we do not know at all. "If certain parts of the retina of my eye, having light thrown upon them, are disturbed so as to produce the figure of a square, then certain little pieces of gray matter in this ganglion (the optic thalami), which are distributed we do not know how, will also be disturbed, and the impression corresponding to that is a square."[1] The cerebral image is a thing inferred; it has been directly inspected by no man, and what its precise nature may be is as yet not even a matter to be conjectured. Hence, our question in proportion reduces itself to this:—

As an unknown quantity is to *O*,
So is *M'I'* to *EI*, another unknown quantity.

This difficulty is, however, a practical one, and it is possible to hope that, with the growth of human knowledge, something definite may come to be known about the cerebral image. There was a time when the retinal image was equally unknown, and now physiologists have a good deal to say about it. If the cerebral image does come to be known, our two unknown qualities will be reduced to one, and the search for *EI*, under such circumstances, does not seem, on the face of it, absurd.

But a far more serious difficulty than this faces us in the extract given above, and one which seems to threaten the destruction of the whole parallelistic scheme. It is this: I see a man looking at a candlestick. Clifford tells me that both the man and the candlestick are objects or phenomena in my mind. An image of the candlestick is formed upon the man's retina, and nerve-

[1] "Body and Mind," p. 62.

messages go from this to form a cerebral image somewhere inside of his brain. This cerebral image is a material fact, and is, hence, a group of my possible sensations, just as the candlestick is. That there may be no mistake about the candlestick, Clifford points out that *it* is not the external reality whose existence is represented in the man's mind, and reiterates the statement that *it* is a mere perception in *my* mind. He adds that the cerebral image is not the man's perception of the candlestick, for the cerebral image is merely the idea of a possible perception in my mind. Now, we have seen that the parallelistic scheme as amended by Clifford is as follows: —

$$\frac{C'I'}{M'I'} \text{ —— } \frac{R'I'}{E''I''} \text{ ..... } \frac{O}{EI} \text{ ..... } \frac{RI}{E'I'} \text{ —— } \frac{CI}{MI}$$

This is to say, my mind is parallel with my cerebral activity; in the formula it is represented by $M'I'$. This $M'I'$ does not correspond to the whole universe of matter; it does not correspond to the whole of my body; it does not even correspond to the whole of my nervous system. It corresponds only to certain parts of my brain: "there is no sensation till the message has got to the optic ganglion, for this reason, that if you press the optic nerve behind the eye, you can produce the sensation of light."[1] Nor must we forget that everything in my mind, every perception that I can possibly have and every memory of a perception, must belong to this $M'I'$.[2] Taken together, these things constitute the reality of $C'I'$, which is my brain in action.

But now we are told that O and CI are my actual or possible sensations, since they are material facts. In other words, we are told that they must take their place as parts of $M'I'$. And as RI, $R'I'$, and $C'I'$ are also material facts — are parts of the same material world with O and CI — it follows, of course, that they also must be regarded as my actual or possible sensations, and as constituent parts of $M'I'$. It is palpably absurd to put half of the material world in $M'I'$, and to banish the other half to a totally different sphere. Of this absurdity no parallelist worthy of the name can be guilty. Hence I must regard the whole of the upper row in our formula — my brain, my retina, the candlestick, the other

[1] "Body and Mind," p. 51.

[2] I speak here a little loosely, but it will not mislead the reader. More strictly, these things must *be classed with* $M'I'$, as the reality of my brain in action.

man's retina, his brain, and everything else that is material — as nothing else than my actual or possible sensations, my mind.

Were it possible to do so, I should be glad to write out, for the sake of clearness, the parallelistic formula as amended to fit these statements. For obvious reasons the thing cannot be done. According to the formula, brain and mind are parallel; they are not strictly identical, but are in different worlds; the one is the appearance, the outside, and the other the reality, the inside. The physical world gets along by itself; mental facts merely "go along with" physical facts with which they must never be confounded. Here we are told that all the physical facts are mental facts, are *my* mental facts. With what are all these mental facts parallel? Not with $C'I'$, for that is one among the mental facts. One cannot make a thing parallel with itself — at once inside and outside. To say that $C'I'$ "goes along with" itself is mere nonsense, and to found a scheme of things upon such nonsense is nonsense in the second degree. It is as impossible to represent graphically such a doctrine as this, as it is to represent graphically the doctrine of Cassiodorus that the whole soul is in each of its own parts.

I beg the reader to take this in all seriousness, for the difficulty does not arise out of an unfortunate turn of phrase which may be easily corrected. It is really fundamental. The more clearly one comprehends the parallelistic doctrine, the more clearly does one see that a fundamental distinction of two orders of being is essential to it. There are physical facts and there are mental facts. Between these there is a correspondence, but the series never intersect. The first case of correspondence that I can establish, and the case from which I set out in my attempt to prove correspondence anywhere else, is the parallelism of my mind and my brain. I argue: *as* my cerebral image of the object *is to* the object, *so is* my perception of the object *to* the thing in itself, *i.e.* to the reality of the object, its mind or mind-stuff. Now I am told that my cerebral image of the object is *not* parallel to my perception of the object, a thing in a different world, but is a perception itself and in the same mind with the other. What becomes of my parallelism?

It disappears. The doctrine of parallelism cannot retain the least plausibility without an external world — I mean, without a *material* external world. The material external world upon which

I have depended to establish the doctrine, Clifford has rolled together and put into my mind. He offers me another external world, it is true; a world of other minds. In place of the candlestick he puts the mind or mind-stuff of the candlestick; in place of the other man's brain he puts the other man's mind. But where is the parallelism? Is there a parallelism between the candlestick (now in my mind) and the mind of the candlestick, which is external to my mind? Is there a parallelism between the other man's brain (now in my mind) and the mind of the other man, which is external to my mind? Clifford has taken great pains to prove that what is parallel to my mind and to the whole of my mind, including candlesticks, brains, etc., as perceived by me, is nothing else than my cerebral image or collection of cerebral images. *The reality of the candlestick I see, and of the brain I see, ought, then, to be some disturbance in my own brain.* But what is the relation of different minds to each other, or to the images in each other? Of this the doctrine of parallelism as expounded by Clifford gives not even a hint. And if my own brain turns out to be nothing more than a possible perception in my own mind, how can I conceive my mind to be parallel with my brain? The whole edifice which has been erected seems to crumble down into a shapeless heap of absurdity.

The collapse is inevitable. The doctrine of parallelism needs an external material world, and cannot get on without one. Clifford uses such a world to establish the doctrine, and then tries to throw it away. When he wrote, the works of Berkeley and Hume and Mill had made their impression upon the mind of the public, upon the mind of the man of science, as well as upon that of the professional philosopher. It seemed to many that what we perceive as material things are only complexes of sensations. Are not sensations in minds? Can they be external? Clifford undertook the task of making the whole material world a part of the contents of a mind, and at the same time making the whole of that mind parallel with a part of the material world. We must at least yield him the admiration due to courage.

But suppose that he had left the material world external, and had not substituted for it a realm of minds, would the parallelistic doctrine be free from difficulties? It seems scarcely necessary to point out to the reader that it would meet the difficulty inseparable from every doctrine which takes its stand upon the psycho-

logical standpoint. If I can know that minds and brains are parallel, my mind cannot wholly be shut up to the psychic concomitants of brain-changes. If all my knowledge really is included in the $M'I'$ of the formula, the rest of the formula is non-existent for me, and I am not a parallelist.

To be a parallelist, such a parallelist as Clifford was while he was building up the argument, one must be naïve; one must shut the mind up to its sensations and ideas, and at the same time let it know an external world beyond its sensations and ideas, a world of material things to which sensations and ideas are parallel. The inconsistency is glaring, and it is little wonder that the parallelist tries to remove it by becoming a metaphysician. This is what Clifford has done. As a metaphysician he has denied the material world of candlesticks and brains to be external at all. But without *something* external he cannot get on, and he, hence, offers us a new externality of a different sort. He quite wrecks his parallelistic formula, it is true; but the fact that he does so is not at once evident, and he may still account himself a parallelist — an enlightened parallelist. The fact is that he occupies two positions at once, that of the plain man, who is a dualist, and that of the subjective idealist.

We have seen what comes of adhering half-heartedly to the position of the plain man, but there is danger that we may see it and straightway forget it. Hence, I shall make no apology for discussing in the following chapter The Metaphysics of the "Telephone Exchange." It ought to be of some interest both to the metaphysician and to the man who is accustomed to shake his head over metaphysicians.

CHAPTER XXII

THE METAPHYSICS OF THE "TELEPHONE EXCHANGE"

We are told by Professor Karl Pearson that the material of science is coextensive with the whole life, physical and mental, of the universe. The field of science is coextensive with *knowledge*. "If there are facts, and sequences to be observed among those facts, then we have all the requisites of scientific classification and knowledge. If there are no facts, or no sequences to be observed among them, then the possibility of *all* knowledge disappears." There are many branches of science, and some are better established than others, yet in all it seems possible for men to come to something like a practical agreement as to fundamental principles.

"The case is quite different with metaphysics and those other supposed branches of human knowledge which claim exemption from scientific control. Either they are based on an accurate classification of facts, or they are not. But if their classification of facts were accurate, the application of the scientific method ought to lead their professors to a practically identical system. Now one of the idiosyncracies of metaphysicians lies in this: that each metaphysician has his own system, which, to a large extent, excludes that of his predecessors and colleagues. Hence we must conclude that metaphysics are built either on air or on quicksands — either they start from no foundation in facts at all, or the superstructure has been raised before a basis has been found in the accurate classification of facts. I want to lay special stress on this point. There is no short cut to truth, no way to gain a knowledge of the universe except through the gateway of scientific method. The hard and stony path of classifying facts and reasoning upon them is the only way to ascertain truth. It is the reason and not the imagination which must ultimately be appealed to. The poet may give us, in sublime language, an account of the origin and purpose of the universe, but in the end it will not satisfy our æsthetic judgment, our idea of harmony and beauty, like the

few facts which the scientist may venture to tell us in the same field. The one will agree with all our experiences past and present, the other is sure, sooner or later, to contradict our observation, because it propounds a dogma, where we are as yet far from knowing the whole truth. Our æsthetic judgment demands harmony between the representation and the represented, and in this sense science is often more artistic than modern art."[1]

In a foot-note Professor Pearson tells us that it is perhaps impossible satisfactorily to define the metaphysician, but that the meaning he attaches to the term will become clearer later in his book. The above extract, taken alone, seems to make the accusation against him a general shiftlessness of mind, proceeding from a poetic indifference to scientific method. The author regards him as a dangerous member of the community, because it is not recognized that he is merely a poet, and he is apt to be taken seriously. He is a "Portuguese of the Intellect," who endeavors to establish a right to the foreshore of our present ignorance, and may hinder the settlement in due time of vast and yet unknown continents of thought. This science should prevent.[2] But as we read on we discover that the charge against this dark character is a much more specific one. The real head and front of his offending is not so much that he recklessly anticipates the cautious generalizations of science, as that he lays claim to a realm beyond the sphere of science altogether.

From the material provided by the senses, either directly or in the form of stored sense-impressions, science draws conceptions. These are products of the reflective faculty, and they exist in the imagination. It is legitimate to form conceptions of things not directly verifiable by the senses, but so long as they are not thus verifiable, we are not justified in asserting that they have objective reality. Atoms and molecules are such conceptions. In a sense they are supersensuous, for no man has become directly conscious of them as sense-impressions, and perhaps no man ever will; but this means only that they are mental conceptions which assist us in classifying phenomena, *i.e.* sense-impressions. Science has, hence, to do only with sense-impressions and with ideal constructs which are useful in helping us to arrange the same. Only what is directly given as sense-impression is actual. Thus the supersensuous of science is but a construct in the imagination; it is made up of

[1] "The Grammar of Science," 2d ed. London, 1900, pp. 16, 17. [2] p. 25.

remembered sense-impressions, and it has no being in an extra mental world. "On the other hand, the metaphysician asserts an existence for the supersensuous which is unconditioned by the perceptive or reflective faculties in man. His supersensuous is at once incapable of being a sense-impression, and yet has a real existence apart from the imagination of men. It is needless to say that such an existence involves an unproven and undemonstrable dogma."[1]

Since the metaphysician holds to the supersensuous in this sense of the word, his doctrine is "pseudo-science."[2] He fills the "beyond" of sense-impression with "phantasms."[3] It is as an "unconscious metaphysician" that Professor Tate, the author of "The Properties of Matter," makes of matter a something beyond the sphere of perception.[4] As a something in the "beyond" of sense-impression, matter is a metaphysical entity meaningless for science.[5] The statements of physicists and common-sense philosophers with regard to the nature of matter "are one and all metaphysical — that is, they attempt to describe something beyond sense-impression, beyond perception, and appear, therefore, at best as dogmas, at worst as inconsistencies. If we confine ourselves to the field of logical inference, we see in the phenominal universe not matter in motion, but sense-impressions and changes of sense-impressions, coexistence and sequence, correlation and routine."[6] We must carefully distinguish "conceptual matter from any metaphysical ideas of matter as the substratum of sense-impression."[7] Minds which cannot wholly repress their metaphysical tendencies "must project their conceptions into realities beyond perception."[8] Both physicist and biologist are equally under obligations to withdraw "from the metaphysical limbo beyond sense-impression."[9] To recognize that the contents of the mind ultimately take their origin in sense-impressions removes metaphysics "from the field of knowledge."[10] The phenomenal world should be distinguished from "the unreal products of metaphysical thought."[11]

The metaphysician is, thus, a man who refuses to confine his world within the limits of sense-impressions and mental constructs of such. He attempts to pass beyond the confines, not merely of actual, but even of possible, human knowledge. Professor Pearson

[1] pp. 95, 96.
[2] p. 108.
[3] p. 117.
[4] p. 248.
[5] p. 251.
[6] p. 260.
[7] p. 261.
[8] p. 269.
[9] p. 337.
[10] p. 505.
[11] p. 506.

reprimands him for this, and he endeavors to make clear just where we must place the limits of the knowable.

He tells us that a message is carried by a sensory nerve to the brain. At the brain what we term the sense-impression is formed, and probably some physical change takes place which remains with a greater or less degree of persistence in the case of those stored sense-impressions which we term memories. "Everything up to the receipt of the sense-impression by the brain is what we are accustomed to term physical or mechanical; it is a legitimate inference to suppose that what from the psychical aspect we term memory has also a physical side, that the brain takes for every memory a permanent physical impress, whether by change in the molecular constitution or in the elementary motions of the brain substance, and that such physical impress is the source of our stored sense-impression. These physical impresses play an important part in the manner in which future sense-impressions of a like character are received. If these immediate sense-impressions be of sufficient strength, or amplitude as we might perhaps venture to say, they will call into some sort of activity a number of physical impresses due to past sense-impressions allied, or, to use a more suggestive word, *attuned* to the immediate sense-impression. The immediate sense-impression is conditioned by the physical impresses of the past, and the general result is that complex of present and stored sense-impressions which we have termed a 'construct.'"[1]

Now a message which has been conducted to the brain along a sensory nerve may be reflected directly as an outgoing message along a motor nerve. In this case a sense-impression can be received without our recognizing it, without our being conscious. Again, the sense-impression received may arouse stored sense-impressions. In this case we are conscious, we *think:* "Thus what we term consciousness is largely, if not wholly, due to the stock of stored impresses, and to the manner in which these condition the messages given to the motor nerves when a sensory nerve has conveyed a message to the brain. The measure of consciousness will thus largely depend on (1) the extent and variety of past sense-impressions, and (2) the degree to which the brain can permanently preserve the impress of these sense-impressions, or what might be termed the complexity and plasticity of the brain."[2]

[1] pp. 42, 43. [2] p. 44.

So far Professor Pearson does not appear to have said anything very much out of harmony with the usual parallelistic scheme. There are such things as human bodies. They are acted upon by other things. When the resulting message is conveyed to the brain along a nerve there arises a mental something called a sense-impression. Remembered sense-impressions have their parallels in cerebral activities, as well as new sense-impressions. All mental constructs are composed of sense-impressions and the revivals of such. The language used seems here and there a trifle careless, as, for instance, when it is said that the *brain* receives the sense-impression, or that the physical impress in the brain is the *source* of stored sense-impressions. The distinction between physical and mental is by no means so well and clearly drawn as it is by Clifford. Nevertheless, it is drawn fairly well; we have here contrasted the "psychical aspect" and the "physical side," the "elementary motions of the brain substance" and the "sense-impressions."

To make more clear the view of brain activity which he embraces, Professor Pearson compares the brain to the central office of a telephone exchange from which wires radiate to various senders and receivers of messages. To this figure he frequently recurs,[1] and the position of the mind is regarded as analogous to that of the clerk shut up in such an exchange and incapable of getting nearer to his customers than his end of the telephone wires. What can such a clerk know of the world beyond his little office? In the necessary limitations of his knowledge we have a true image of the limitations of all our knowledge. The passage in which this doctrine is best brought out reads as follows:—

"We are accustomed to talk of the 'external world,' of the 'reality' outside us. We speak of individual objects having an existence independent of our own. The store of past sense-impressions, our thoughts and memories, although most probably they have beside their psychical element a close correspondence with some physical change or impress in the brain, are yet spoken of as *inside* ourselves. On the other hand, although if a sensory nerve be divided anywhere short of the brain we lose the corresponding class of sense-impression, we yet speak of many sense-impressions, such as form and texture, as existing outside ourselves. How close then can we actually get to this supposed world outside

[1] pp. 44–46, 60–63, 108, 153, 240, 241.

ourselves? Just as near but no nearer than the brain terminals of the sensory nerves. We are like the clerk in the central telephone exchange who cannot get nearer to his customers than his end of the telephone wires. We are indeed worse off than the clerk, for to carry out the analogy properly we must suppose him *never to have been outside the telephone exchange, never to have seen a customer or any one like a customer — in short, never, except through the telephone wire, to have come in contact with the outside universe.* Of that 'real' universe outside himself he would be able to form no direct impression; the real universe for him would be the aggregate of his constructs from the messages which were caused by the telephone wires in his office. About those messages and the ideas raised in his mind by them he might reason and draw his inferences; and his conclusions would be correct — for what? For the world of telephonic messages, for the type of messages which go through the telephone. Something definite and valuable he might know with regard to the spheres of action and of thought of his telephonic subscribers, but outside those spheres he could have no experience. Pent up in his office he could never have seen or touched even a telephonic subscriber *in himself.* Very much in the position of such a telephone clerk is the conscious *ego* of each one of us seated at the brain terminals of the sensory nerves. Not a step nearer than those terminals can the *ego* get to the 'outer world,' and what in and for themselves are the subscribers to its nerve exchange it has no means of ascertaining. Messages in the form of sense-impressions come flowing in from that 'outside world,' and these we analyze, classify, store up, and reason about. But of the nature of 'things-in-themselves,' of what may exist at the other end of our system of telephone wires, we know nothing at all.

"But the reader, perhaps, remarks: 'I not only see an object, but I can *touch* it. I can trace the nerve from the tip of my finger to the brain. I am not like the telephone clerk, I can follow my network of wires to their terminals and find what is at the other end of them.' Can you, reader? Think for a moment whether your *ego* has for one moment got away from his brain-exchange. The sense-impression that you call touch was just as much as sight felt only at the brain end of a sensory nerve. What has told you also of the nerve from the tip of your finger to your brain? Why, sense-impressions also, messages conveyed along optic or tactile

sensory nerves. In truth, all you have been doing is to employ one subscriber to your telephone exchange to tell you about the wire that goes to a second, but you are just as far as ever from tracing out for yourself the telephone wires to the individual subscriber and ascertaining what his nature is in and for himself. The immediate sense-impression is just as far removed from what you term the 'outside world' as the store of impresses. If our telephone clerk had recorded by aid of a phonograph certain of the messages from the outside world on past occasions, then if any telephonic message on its receipt set several phonographs repeating past messages, we have an image analogous to what goes on in the brain. Both telephone and phonograph are equally removed from what the clerk might call the 'real outside world,' but they enable him through their sounds to construct a universe; he projects those sounds, which are really inside his office, outside his office, and speaks of them as the external universe. This outside world is constructed by him from the contents of the inside sounds, which differ as widely from things-in-themselves as language, the symbol, must always differ from the thing it symbolizes. For our telephone clerk sounds would be the real world, and yet we can see how conditioned and limited it would be by the range of his particular telephone subscribers and by the contents of their messages.

"So it is with our brain; the sounds from telephone and phonograph correspond to immediate and stored sense-impressions. These sense-impressions we project as it were outwards and term the real world outside ourselves. But the things-in-themselves which the sense-impressions symbolize, the 'reality,' as the metaphysicians wish to call it, at the other end of the nerve, remains unknown and is unknowable. Reality of the external world lies for science and for us in combinations of form and color and touch — sense-impressions as widely divergent from the thing 'at the other end of the nerve' as the sound of the telephone from the subscriber at the other end of the wire. We are cribbed and confined in this world of sense-impressions like the exchange clerk in his world of sounds, and not a step beyond can we get. As his world is conditioned and limited by his particular network of wires, so ours is conditioned by our nervous system, by our organs of sense. Their peculiarities determine what is the nature of the outside world which we construct. It is the similarity in the organs of sense and in the perceptive faculty of all

normal human beings which makes the outside world the same, or *practically* the same, for them all. To return to the old analogy, it is as if two telephone exchanges had very nearly identical groups of subscribers. In this case a wire between the two exchanges would soon convince the imprisoned clerks that they had something in common and peculiar to themselves. That conviction corresponds in our comparison to the recognition of other consciousness."[1]

The statements made in this extract may be accepted as fairly typical of those made throughout the book from which it is taken. What can we learn from them touching the necessary limitations of human knowledge? The *ego* is likened to a clerk who has never been outside of his telephone exchange. Of the "real" universe outside itself it can form no direct impression — the real universe must be for it the aggregate of its constructs from the messages which have been brought to it along the nerves. It is true that we are apt to "speak of many sense-impressions, such as form and texture, as existing outside ourselves." But this is error. Sense-impressions can exist only in the brain-exchange. When we suppose ourselves to be tracing the course of a nerve from finger-tip to brain, we forget that we are dealing with sense-impressions. The *ego* cannot for a moment get away from its brain-exchange, and all that it feels, it feels there and nowhere else. The clerk perceives nothing but sounds, and out of them he constructs a universe. These sounds "are really inside his office," but he projects them outside his office and speaks of them as the external universe. So it is with the *ego;* its immediate and stored sense-impressions correspond with sounds received and sounds which have been received before; these sense-impressions the *ego* projects as it were outwards, and terms them the real world outside itself. As the clerk is confined to this world of sounds, so the *ego* is "cribbed and confined" in the world of sense-impressions, and cannot get a step beyond it.

The limits to knowledge here laid down appear at first sight to be sufficiently definite and unmistakable. In many other passages they are as emphatically affirmed. "We are now in a position to see what is meant by 'reality' and the 'external world.' Any group of immediate sense-impressions we project outside ourselves and hold to be part of the external world. As such we call it a

[1] pp. 60–63.

phenomenon, and in practical life term it real."[1] "It is idle to postulate shadowy unknowables behind that real world of sense-impression in which we live. So far as they affect us and our conduct they are sense-impressions; what they may be beyond is fantasy, not fact; if indeed it be wise to assume a *beyond*, to postulate that the surface of sense-impressions which shuts us in, must of necessity shut something beyond out."[2] "Human thought has its ultimate source in sense-impressions, beyond which it cannot reach."[3] "The mind is absolutely confined within its nerve-exchange; beyond the walls of sense-impression it can logically infer nothing."[4]

The complete isolation of the *ego* from everything beyond its immediate and stored sense-expressions — in other words, from everything beyond itself — which it seems to be the purpose of these statements to maintain, could have been made clearer by Professor Pearson in his picture of the telephone clerk, had he brought out more distinctly the fact that, just as the clerk has never seen a customer, or anything like a customer, so he has never seen even a telephone exchange or anything like a telephone exchange.

The clerk is, by hypothesis, absolutely confined to his messages, and his world is wholly composed of messages heard and remembered. A telephone is not to be confounded with a message or with any construct of such. Any wire that can mean anything at all to such a clerk, all of whose knowledge is confined to sounds, must be a complex of sounds. That the clerk has a body, and that this body is placed in a telephone exchange, he cannot possibly know as an ordinary clerk is supposed to know these things. He does not perceive the telephones about his body; he perceives nothing but sounds. May we say that his body, the telephones, the wires, and the subscribers, are *beyond* his world?

First we must ask what the word "beyond" can mean to him. If a man has absolutely no conception of anything but sounds, then the word, to have any meaning at all to him, must be interpreted in terms of sound. Beyond the sounds he knows, are, perhaps, other sounds. What else can the word "beyond" mean? If all significance be denied it, the word says nothing at all. If it is to be given a content, however indefinite, it must be a sound-content.

So it is with the *ego* seated in the brain-exchange. That it is

[1] pp. 63–64. [2] p. 73. [3] p. 74. [4] p. 108.

seated there, and even that there is a brain-exchange, it cannot possibly know, if the brain-exchange is not a mere construct of sense-impressions, and is not itself in the *ego*. We speak loosely when we say that the *ego* can get no nearer to the external world "than the brain-terminals of the sensory nerves." Have we not seen that the very nerve that we trace from finger-tip to brain is a group of sense-impressions, and wholly in the *ego?* It is foolish to speak of sense-impressions as either near to or far from the external world. The external world is nothing but a group of sense-impressions. The brain is in the *ego*, not the *ego* in the brain. The brain telephone exchange is, thus, a construct in the mind, and to say that the whole mind is in the brain-exchange, and cannot get beyond it, seems to be mere nonsense.

Professor Pearson might, I repeat, have made all this clearer in his figure of the clerk. It would, to be sure, have resulted in the instant dismissal of the clerk, as a logical monstrosity. However, a number of things that he says later in his book bring out the truth very clearly, and we see that the clerk really must be dismissed.

We find that space is something peculiar to the individual perceptive faculty; it is our mode of perceiving sense-impressions. The self, seated "metaphorically, not physically," in the telephonic brain-exchange, classes together some groups of the messages which come to it, "and speaks of them as objects existing in space." Space and the things in space, are, thus, mental constructs.[1] Time is also a mode of perception; "time is the perception of sequence in stored sense-impressions — the relationship of past perceptions with the immediate perception. Thus time involves in its essence memory and thought — in other words, *consciousness.*" Space has been termed an *external*, and time an *internal*, mode of perception; but the distinction is not a good one, for both are "dependent on the association of immediate and stored sense-impressions."[2] And motion, which is the combination of space with time, is a mode of perception too. It is not even a *fact* of perception, for "a sense-impression in itself cannot be said to move; it is there at the brain-terminal or not there;"[3] "of the universe as contained in messages received at the brain telephonic exchange, or of groups of sense-impressions, we cannot assert motion — objects appear, disappear, and reappear; sense-

[1] pp. 152–157. [2] pp. 181–185. [3] p. 249.

impressions alter and modify their grouping. Change is the right word to apply to them rather than motion. It is in the field of conception solely that we can properly talk of the motion of bodies; it is there, and there only, that geometrical forms change their position in absolute time — that is, move."[1] The mind absolutely rebels against the notion of anything moving but these conceptual creations, which are unrealizable in the field of perception.[2] Motion is "a pure conception, which may describe perceptual changes, but cannot be projected into the phenomenal world without involving us in inexplicable difficulties."[3]

Thus space, time, and motion are forms of perception. It is only mental constructs that can exist in space and time and can move. It follows that mechanism which implies the geometrical motions of geometrical forms is a product of conception, is a mental construct and nothing more.[4] It is "no reality of the phenomenal world."[5] We have seen above that only a metaphysician could be so lost to all sense of propriety as to make it a reality of a world beyond phenomena.

We must, then, hold firmly to the truth that the "messages" that are "conveyed along optic or tactile sensory nerves," that "come flowing in" from the outside world, exist only in the imagination of the *ego*. Indeed, the whole telephone exchange — office, wires, and everything else — can exist nowhere else. Is it not conceived as a something spread out in space and existing in time? Is it not a mechanism? Where can a mechanism exist unless in consciousness? If, then, the *ego* dreams of itself as in a telephone exchange, it must realize, on reflection, that it is wholly inconceivable that it should really be in a telephone exchange beyond consciousness, and receiving messages from such a "beyond." What becomes of a telephone exchange if we deny extension in space to the office and to the wires, and motion to the messages? How can we conceive of the clerk at one end of the wire and the subscriber at the other when the wire has no extension whatever? Nothing lies "between" clerk and subscriber (assuming both to exist), for, since space, time, and motion can exist only in the imagination of clerk or subscriber, there can be no "between," in any intelligible sense of the word, unless it exist in the imagination of the one or the imagination of the other. Both ends of the only conceivable "wire" lie in the same imagination,

[1] pp. 241–242. [2] p. 241. [3] p. 272. [4] p. 240. [5] p. 325.

and the message which is conveyed along it, is conveyed "in conception." The telephone exchange, then, if there be such a thing, exists solely within the *ego;* it is a construct of sense-impressions. As a device for making clear the relations between *egos*, or between an *ego* and anything else beyond it, it is a manifest absurdity.

It seems, then, as clear as anything can be, that the telephone exchange is a tree upon which we mount, and which we then proceed to pull up after us. First, it is outside of the *ego;* the *ego* is in the tree, and is no nearer to the ground than is the branch upon which it is perched. Next, the tree is in the *ego*, and no tree can be conceived that is not in an *ego*. The first view of the tree may be represented thus : —

$$\frac{CI \cdots\cdots RI \cdots\cdots O}{E}$$

Here O is some object, such as a candlestick; RI is my retinal image of the object; CI is my cerebral image, as Clifford called it, the brain-disturbance resulting from the message sent from RI; E is the *ego* seated at the brain-exchange. Of O, E can know nothing whatever except as a message is propagated to CI. It is "there," at CI, and gets nothing whatever but sense-impressions which appear in it when there are "elementary motions of the brain-substance."

According to the second view, O, RI, CI, the distances which separate them, and the motions in which they are concerned, are all constructs of sense-impressions; they are really *inside* E. What, then, can it mean, if I say that E can get no nearer to O than CI? that it is "cribbed and confined" in CI? that it cannot know O as it is in itself? Is O anything but a group of sense-impressions projected, "as it were, outwards"?

The two views are palpably inconsistent with each other, but it would be hasty to assume that they cannot be held simultaneously, for there is abundant evidence that Professor Pearson does hold them simultaneously. When he resolutely pulls up his tree he is lost — his scheme of things disappears. To keep clerk and subscribers in any intelligible relations with each other, he must let it down again at once, and this he proceeds to do. He is evidently trying to keep it at once up and down — in short, he finds it impossible to "wholly repress his metaphysical tendencies," and

must project his conceptions into "realities beyond perception," while denying that they may be so projected. So abundant is the material illustrative of this fact, that it is puzzling to know what passages to select.

The lengthy extract which I have given above fairly bristles with statements that imply that we are to conceive of the *ego* as in the telephone exchange, and not of the telephone exchange as in the *ego*. We are told that our thoughts and memories most probably have "beside their psychical element a close correspondence with some physical change or impress in the brain"; that we can get no nearer to the supposed outside world "than the brain-terminals of the sensory nerves"; that "we are like the clerk in the central telephone exchange who cannot get nearer to his customers than his end of the telephone wires"; that the conscious *ego* of each one of us is "seated at the brain-terminals of the sensory nerves"; that it has no means of ascertaining "what in and for themselves are the subscribers to its nerve exchange"; that "messages in the form of sense-impressions come flowing in from that 'outside world,'" but "of what may exist at the other end of our system of telephone wires, we know nothing at all"; that the sounds which the telephone clerk projects outside his office "are really inside his office"; that the things-in-themselves which the sense-impressions symbolize, the things "at the other end of the nerve," remain unknown and are unknowable; that sense-impressions are "as widely divergent from the thing 'at the other end of the nerve' as the sound of the telephone from the subscriber at the other end of the wire"; that as the clerk's world "is conditioned and limited by his particular network of wires, so ours is conditioned by our nervous system, by our organs of sense"; that "it is the similarity in the organs of sense and in the perceptive faculty of all normal human beings which makes the outside world the same, or *practically* the same, for them all."

These statements mean, if they mean anything, that the nerves and brain are to be distinguished carefully from the sum total of the immediate and stored sense-impressions which arise when certain physical motions have taken place in nerves and brain. It seems mere incoherence to repeat them, and at the same time to understand that the nerves and brain under discussion are only mental constructs in the brain-exchange, *i.e.* are at the brain-terminals of these same nerves. What becomes of our telephone ex-

change if we conceive the office with all its apparatus, and the whole network of wires connected therewith, to be gathered up and drawn into the imprisoned clerk? Is there any conceivable sense in which we can regard him as imprisoned, "cribbed and confined," when he has swallowed his prison? How can he be at one end of a wire when the whole wire is within him?

If he is to remain at a brain-exchange at all, it must be at the exchange of a brain that is not in him as his construct. The statements quoted above affirm him to be in such an exchange. Similar statements abound elsewhere in Professor Pearson's book. He supposes himself, for example, to turn quickly in his chair and to knock his knee against the edge of the table. He tells us that a message is carried by a sensory nerve from the affected part to the brain. "At the brain what we term the sense-impression is formed."[1]

Now, are we to suppose the chair, table, knee, nerve, and brain here referred to, to be merely in Professor Pearson's *ego?* At what brain, then, does the sense-impression come into being? In what "exchange" is the whole complex of immediate and stored sense-impressions? "Self, seated (metaphorically, not physically) in the telephonic brain-exchange, receives an infinite variety of messages, which we can only assume to reach self in precisely the same manner. Yet self classes some groups of these messages together, and speaks of them as objects existing in space, while to other groups it has denied in the past, or still denies, this spatial existence."[2] Are we to regard the telephonic brain-exchange in which the self is seated, are we to regard the sources from which it received an infinite variety of messages, as nothing more than groups of messages in the self, merely "spoken of" as existing in space? Surely, we are not to suppose that Professor Pearson penned the above sentence with the intention of making it clear that the self is not in the telephonic brain-exchange, but that the telephonic brain-exchange is a construct in the self and is merely "spoken of" as existing in space! It is scarcely necessary to multiply citations, for the significance of those given is quite unmistakable. There is, however, one oft-recurring phrase which must not be allowed to pass without examination.

We have seen that, near the close of the lengthy extract which likens the *ego* to the telephone clerk, we are told that "it is the

[1] p. 42. [2] p. 153.

similarity in the organs of sense and in the perceptive faculty of all normal human beings which makes the outside world the same, or *practically* the same, for them all." What are we to understand by this "perceptive faculty"? What is it? Is it a construct of sense-impressions, or is it something beyond sense-impressions? The rôle which it is supposed to play is certainly an important one; it has laid upon its shoulders the duty of constructing the universe: "The brain in the individual man is probably considerably influenced by heredity, by health, by exercise, and by other factors, but speaking generally the physical instruments of thought in two normal human beings are machines of the same type, varying indeed in efficiency, but not in kind or function. For the same two normal human beings the organs of sense are also machines of the same type and thus within limits only capable of conveying the same sense-impressions to the brain. Herein consists the similarity of the universe for all normal human beings. The same type of physical organ receives the same sense-impressions and forms the same 'constructs.' Two normal perceptive faculties construct practically the same universe." [1]

From this passage it is clear that the perceptive faculty is but another name for the brain at whose "exchange" the *ego* is supposed to have its seat. The same seems to be indicated by the words which precede the quotation given just before: "As his (the clerk's) world is conditioned and limited by his particular network of wires, so ours is conditioned by our nervous system, by our organs of sense. Their peculiarities determine what is the nature of the outside world which we construct."

The perceptive faculty is, then, the brain; and by the expression "the organs of sense and the perceptive faculty" we can mean only the nervous system as a whole. Of course, when one means the brain, it is better to say the brain, than to say the perceptive faculty. The latter is an ambiguous form of expression drawn from a psychology now pretty generally abandoned, and supposed to be most affected by those who are most given over to metaphysical speculation. The brain is a physical thing; does it not sound odd to say that the perceptive faculty is a physical thing? The sense-impression is formed at the brain; does it sound well to say that it is formed at the perceptive faculty? The expressions are scarcely interchangeable, and it seems unwise to

[1] p. 47.

abandon the one which is the most direct and unambiguous for the other, which is more vague, and which comes to us burdened with the associations which it has gathered from a mediæval metaphysics.

It is clear that in the above passage Professor Pearson means by the perceptive faculty the brain. It is not equally clear that he means this every time that he uses the expression; but wherever his meaning is at all distinctly indicated it seems reasonable to assume that this is his meaning. He writes: "How far does this routine of sense-impressions depend upon the perceptive faculty: How far does it lie outside that faculty in the unknown and unknowable beyond of sensation? The question is one to which at present no definite answer can be given, and perhaps one to which no answer can ever be found. If, with the materialists, we make matter the thing-in-itself, we throw the routine back on something behind sense-impressions, and, therefore, unknowable. Precisely the same happens if, with Berkeley, we attribute the routine to the immediate action of a deity. Materialist and idealist are here at one in casting the routine of sense-impression into the unknowable. But the business of the scientist is to know, and therefore he will not lightly assent to throwing anything into the unknowable so long as known 'causes' have not been shown to be insufficient. The scientific tendency would therefore be to consider the routine of our perceptions as due in some way to the structure of our perceptive faculty before we appeal to any supersensuous aid."[1]

This scientific tendency Professor Pearson holds to be reasonable on the ground that we have evidence that the perceptive faculty is a *selective* machine. We have, he says, only to walk abroad with a dog in order to discover this. We find that "the perceptive faculty in the dog selects certain sense-impressions, and these form for it reality; that of the man selects another and probably far more complex range, which form in turn reality for him. Both may be again compared to automatic sweetmeat boxes, which only work on the insertion of coins of definite and different value."[2] But, "there is another point which undoubtedly deserves notice. Our sense-impressions are indeed complex in their grouping, but they come to us by very few and comparatively simple channels; namely, through the organs of sense. The simplicity of

[1] pp. 101, 102. [2] p. 103.

the scientific law may therefore be partly conditioned by the simplicity of the modes in which sense-impressions are received."[1]

From these passages it seems reasonably clear that the perceptive faculty is the brain. It is contrasted with the organs of sense, and it is suggested that the routine of our perceptions may be due in part to one and in part to the other. The illustration of the sorting-machine is taken up again immediately afterwards: "In some such way as this, perhaps, we may look upon that great sorting-machine — the human perceptive faculty. Sensations of all kinds and magnitudes may flow into it, some to be rejected at once, others to be sorted all orderly, and arranged in place and time. It may be the perceptive faculty itself, which, without our being directly conscious of it, contributes the ordered sequence in time and space to our sense-impressions. The routine of perception may be due to the recipient, and not characteristic of the material." This seems to make the ordering of sense-impressions a less mysterious thing — the whole of *ordered* nature is seen to be the product of one mind, the mind "associated with the machinery of nervous organization."[2]

We find here, of course, certain loosenesses of expression, but some oscillations must be expected of one who has perched himself upon such a limb as that upon which the champion of the telephone exchange elects to sit. Why say that ordered nature is the product of one *mind*, when we have made the brain — the human perceptive faculty — the source of the arrangement of sense-impressions? "Our only experience of thought is associated with the brain of man; no inference can possibly be legitimate which carries thought any farther than nervous systems akin to him."[3] Thus when man and dog walk abroad together, the difference in their worlds must be due to differences in senses and in brains. The sorting-machine, the last strainer that lets in or keeps out sense-impressions, must be cerebral. To identify this sorting-machine with the sense-impressions sorted by it would be pure incoherence; to make of it a "metaphysical" entity, a phantom not to be identified with brain, nerves, or sense-impressions, would not be consistent with Professor Pearson's philosophy. We must assume that by perceptive faculty he means brain, and no other brain than the one at whose "exchange" the *ego* finds itself, and of whose "sortings" it constructs its world.

[1] p. 106. [2] p. 107. [3] p. 74.

It seems as clear as anything can be that in all these passages Professor Pearson has let his tree down again — it is now not in him, but he is in it. The clerk really is in the telephone exchange; there are wires about him, and the exchange and the wires, as well as the customers, are "beyond" him; they must be carefully distinguished from the world of sounds which he constructs. They constitute the sorting-machine; he is the material sorted out. He comes into being in the exchange, and he does not come into being until the messages have completed their journey along the wires from the subscriber. It is palpably absurd to speak of this clerk as coming into being in a telephone exchange which he has constructed in his own imagination.

Thus, in spite of his disapproval of metaphysicians, we find that Professor Pearson is a metaphysician in precisely the sense of the word adopted by himself. He accepts a "beyond"—the sorting-machine with its nerves and sense-organs — and makes this "beyond" responsible for the nature of the world of sense-impressions and mental constructs. He certainly goes nearer to the supposed world outside ourselves "than the brain terminals of the sensory nerves," for he distinguishes between brain, nerves, and sense-organs, and inclines to divide the credit for the ordering of sense-impressions between brain and sense-organs.

The limitations to our knowledge of the "beyond" are, as he lays them down, exceedingly odd. We seem to know a good deal about the brain, the nerves, and the sense-organs, but the thing "at the other end of the nerve remains unknown and is unknowable." Why I should know the brain at whose exchange I am imprisoned, why I should know the nerves which run from that brain, and even the sense-organs in which they terminate, and then and only then come to a wall of ignorance, appears to be a hopeless mystery. If I can know a nerve "beyond" sense-impressions to be a nerve, why cannot I know a table "beyond" sense-impressions to be a table?

A knowledge of a world beyond sense-impressions is, therefore, asserted by Professor Pearson. It is also denied. Sometimes the denial is so decided that we feel a little surprised to find him willing to come forward again and reassert it: "Turn the problem round and ponder over it as we may, beyond the sense-impression, beyond the brain terminals of the sensory nerves, we cannot get. Of what is beyond them, of 'things-in-themselves,' as the meta-

physicians term them, we can know but one characteristic, and this we can only describe as a capacity for producing sense-impressions, for sending messages along the sensory nerves to the brain. This is the sole scientific statement which can be made with regard to what lies beyond sense-impressions. But even in this statement we must be careful to analyze our meaning. The methods of classification and inference, which hold for sense-impressions and for the conceptions based upon them, cannot be projected outside our minds, away from the sphere in which we know them to hold, into a sphere which we have recognized as unknown and unknowable. The laws, if we can speak of laws, of this sphere must be as unknown as its contents, and therefore to talk of its contents as *producing* sense-impressions is an unwarranted inference, for we are asserting *cause and effect* — a law of phenomena or sense-impressions — to hold in a region beyond our experience. We *know* ourselves, and we *know* around us an impenetrable wall of sense-impressions. There is no necessity, nay, there is want of logic, in the statement that behind sense-impressions there are 'things-in-themselves' *producing* sense-impressions. About this supersensuous sphere we may philosophize and dogmatize unprofitably, but we can never know usefully. It is indeed an unjustifiable extension of the term knowledge to apply it to something which cannot be part of the mind's contents."[1]

Here Professor Pearson has gone almost as far as he could go in a denial of our knowledge of a beyond. Nevertheless, he has not gone quite as far as consistency ought to compel him to go. He takes back, it is true, "the sole scientific statement" that we are able to make touching what lies beyond sense-impression; but we are impressed by the fact that it seems worth while to him, both here and in many other passages in his book, to make the statement. This appears to indicate that the statement is not wholly meaningless to him after all. If it be quite without significance, it cannot be a scientific statement, and should not be called such.

In the second place, a careful examination of the passages quoted reveals that what is really excluded from knowledge is not the whole "beyond." There are, of course, sweeping denials that we can get beyond sense-impression at all; but these are neutralized by an argument that evidently makes the only thing

[1] pp. 67, 68.

wholly excluded from knowledge the thing "at the end of the nerve." It is denied that this thing is able to send messages "along the sensory nerves to the brain." The existence of the nerves and the brain does not appear to be called in question.

No man would be tempted to commit himself to the "sole scientific statement," even as a preliminary step to its demolition, if he clearly recognized that the brain and nerves in question are not external to the *ego* at all, but are mere constructs in its imagination. That Professor Pearson conceives of them as "beyond" the *ego* is plain from his statement that the *ego* cannot get beyond the brain-terminals of these same nerves. Thus we find the impenetrable wall of sense-impressions by no means impenetrable so far as brain and nerves are concerned. We *must* be able to know at least a part of the "beyond," if we are able to know that the *ego* is *at* that particular spot in the beyond — is in a telephone exchange. But how shall we reconcile this with the unequivocal statement that it is "an unjustifiable extension of the term knowledge to apply it to something which cannot be part of the mind's contents"?

No reconciliation is possible. The fact is that Professor Pearson from time to time puts his telephone exchange into the clerk, but finds it impossible to keep it there. He finds it impossible to keep it there for a very good reason. When the exchange is put within the clerk, the external world, the orderly scheme of things, without which science cannot get on, the scheme in which *egos* have their place, is wholly lost. The psychologist busies himself with the contents of individual *egos*, but even his science compels him to assume an external world that is not to be identified with the contents of any one of these *egos*. The student of physical science does not concern himself with the contents of *egos* at all, when he keeps to his proper field.

That Professor Pearson cannot get on without an external world — not a projection of mental constructs, but a real external world — is evident in every chapter of his book. Mark the following words: "Does science leave no mystery? On the contrary, it proclaims mystery where others profess knowledge. There is mystery enough in the universe of sensation and in its capacity for containing those little corners of consciousness which project their own products, of order and law and reason, into

an unknown and unknowable world."[1] The universe of sensation contains these little corners of consciousness — they, the *egos*, are *in* it, in some sense of the word. What becomes of this scheme of things when we declare that there is no universe of sensation except in an *ego?*

Let us suppose the man and the dog of the illustration given above to take a walk abroad. There is now no "abroad" unless it be in the mind of the man or in the mind of the dog. In which of these minds shall we conceive them to be walking? Their brains are functioning as sorting-machines. They are constructs in the mind of the man or in the mind of the dog. How shall we set about accounting for the difference in the sense-impressions of man and of dog? Shall we say that the one construct in the mind of the man is to be regarded as the sorting-machine which "lets in" itself, the brain of the dog, and everything else that is in the universe in the mind of the man; while the other construct in the mind of the man "lets in" everything that is in the mind of the dog? Shall we say that each walks as a construct in his own imagination — walks only "in conception" — and "lets in" himself and everything else in his world? What can we mean by the phrase "lets in" when we speak thus? The illustration of the man and the dog becomes nonsense unless we are willing to stand by the doctrine of the telephone exchange; and if we stand by that doctrine we must not place the telephone exchange in the clerk.

Those who have some familiarity with the history of reflective thought can readily see that Professor Pearson is a metaphysician. He does not confine himself to the field of physical science, but he tries to give some intelligible account of the mind and of its relation to an external world. They can see, moreover, that he takes his place among metaphysicians of a sufficiently numerous class — those who cut the mind off wholly from an external world, and then go on speaking as though the barrier which they have set up could be transcended. Those who do this are, of course, inconsistent, but sometimes the inconsistency is more or less veiled. With Professor Pearson it is naïve, frank, and reiterated. He who runs may see that the tree is at once up and down — up and down on the same page, up and down in the same sentence. Perhaps this may be accounted for in part by the fact that Professor Pearson is

[1] p. 112.

a metaphysician *par intérim*, as Aramis was a *mousquetaire*, and regards the profession as unworthy of him.

But there is another reason for the palpability of Professor Pearson's failure, and one which more nearly concerns us. It is that he is a student of physical science — one whose first duty it is to give an intelligible account of that external world to which one-half of his statements flatly deny an existence. What he is compelled to say about this world when he is on his own ground — and I for my part have here followed him with pleasure and profit — cannot but be in conflict with such statements.

In his attempt to get on without an external world, and in his failure to do so, Professor Pearson does not stand alone. Many others have trodden the same path. Were his case precisely like that of all other subjective idealists it would not be worth while to examine it at such length. What makes it especially interesting is, that it shows very clearly that the man of science, above all others, must be convicted of inconsistency if he tries to substitute for a real material world to which minds may be "parallel," a world of mental constructs which has no being except in the individual mind; if he insists on denying to the "universe of sensation," which is allowed to have a capacity for containing "little corners of consciousness," any existence whatever except in one or more of those "little corners." Professor Pearson has been so clear and so explicit that he has illustrated this as clearly as any one could wish to have it illustrated; and in doing this he has been, I think, of no little service.

CHAPTER XXIII

THE DISTINCTION BETWEEN THE WORLD AND THE MIND

From what has been said in Chapter XVII it appears to be evident that we cannot conceive of the relation of the mind to the external world after the fashion of the interactionist. With the best of intentions to be something better, he does not succeed in being anything better than a materialist in disguise. One cannot attain to canonization merely by assuming a false name and appearing in a borrowed halo. The *advocatus diaboli* (here the analyst) easily makes short work of such pretensions. And it appears to be equally clear from the chapters which follow that it is impossible to accept quite literally the doctrine of parallelism with its absolute and final separation of mind and world.

We have seen that the doctrine of parallelism is not assumed gratuitously. Men do not become parallelists for no reason at all. They embrace the doctrine because they think they find in their experience facts which justify them in doing so. As we peruse Clifford's pages we find him adducing various instances of concomitance which impel him to conceive of the mind and the world according to a certain scheme. There are physical facts and there are mental facts, and the facts of the two orders are found to be related to each other in a given way. The whole argument assumes that there are physical facts, and that their concomitance with mental facts is matter of observation. In other words, the argument assumes that there is, and that there is perceived to be, a material world which can be related to and contrasted with a mental world.

On the other hand, we find, when the argument comes to an end, the mental facts as a whole quite cut off from the material facts. We discover that only mental facts can be given in consciousness, and that there has been no *experience* of physical facts at all. What we assumed to be physical facts are seen to be, after all, only mental facts. We are, thus, shut up to a parallelism of

one term, an absurdity. This is the suicide of parallelism, which has stabbed itself with the knife of consistency. The same fate hangs over the head of every doctrine which rests in the psychological standpoint with its inherent inconsistency. It cannot afford to grow clear and to draw conclusions with logical rigor. To see itself as it is, is to sound its own death-knell and to draw the knife from the sheath.

But why hold to parallelism at all, under the circumstances? Why not abandon physical facts to their fate, take in hand the single parallel which is left, and construct from that a whole world?

We have seen the attempt made, in somewhat erratic fashion, in the last chapter. When it was found difficult to conceive of the telephone exchange as beyond the clerk, it was pulled into the clerk, and what was the result? Not a world, an orderly system of things, but chaos. Our common experience, which furnishes us the basis upon which we must begin all our efforts at metaphysical analysis and reconstruction, seems to lay before us an external material world and a world of minds related to this in certain more or less definite ways. Our consciousness of all of these is undoubtedly somewhat vague, but at least we have something resembling a system. The illustration of the telephone exchange, when it first makes its appearance upon the scene, strikes us as pleasing and as not without significance, because it appears to be not out of harmony with the system of things as it seems to be revealed to us. There are minds, there are material things, the minds are somehow brought into relation to each other through the material things. Explanation of individual occurrences seems possible by means of reference to the system as a whole. But once draw the telephone exchange into the clerk, and what is the result? We have not even the elements of a world; all our usual ways of accounting for things seem to be swept off of the stage at one swoop.

Said Clifford: "Suppose we put a certain man in the middle of the hall, and we all looked at him. We should all have perceptions of his brain; those would be facts in our consciousness, but they would be all different facts."[1] As we have seen,[2] Clifford himself ends by drawing the telephone exchange into the clerk. Let us try it here. The "certain man in the middle of the hall"

[1] See Chapter XIX. [2] Chapter XXI.

is a man in Clifford's mind and stands in a hall in Clifford's mind. Can we all look at him? The words seem to have become nonsense. Men in Clifford's mind can look at this other man in Clifford's mind. But all these men are in Clifford's mind. What reason has he, then, to believe that there are also other men standing in other halls and looked at by other men?

And if there be, what conceivable relation can there be between all these sets of beings in different minds? We appear to have, not *a world*, but *worlds*, and worlds absolutely disconnected with each other. Surely we have travelled far from the common experience of the world and of minds, which we set out to make more clear to ourselves, when we have substituted for its seeming order and unity, this chaotic multiplicity of disconnected images. The distinction between mind and world is not made clear — it is simply thrown away, and with it the only bond which seems to connect in any way minds with each other. Subjective Idealism is not a system. It is a witches' Sabbath; and it is little wonder that pious souls like Berkeley feel compelled to call upon God to bring order out of chaos by becoming himself a bond of connection between things which seem so wholly a law to themselves.

If, then, we totally renounce the parallelistic scheme and pass over to subjective idealism, we simply give up the problem which we set out to solve. We do not make less vague the distinction between mind and world; we deny that there is a world, and we sweep away all conceivable relations between different minds. The last state of a man who philosophizes in this wise is incomparably less desirable than the first. In the first he grasped vaguely the distinction between the mind and the external world, and that between one mind and another. Now he has pulled down the whole structure which loomed up before him, and sits disconsolate upon its ruins. The best that we can wish him is such a degree of blindness that he may not recognize as a ruin the ruin that he has made.

But if we really wish to make clear to ourselves these distinctions vaguely grasped by the plain man, there seems to be open to us only one method of procedure. That one is the restatement of the parallelistic doctrine in some such form as to obviate the difficulties into which that doctrine as ordinarily stated runs out. Such a restatement I shall now attempt. I warn the reader that there is no part of this volume in which there is more danger of my

deceiving both him and myself, and I invite him to examine most critically every step of my argument. At the same time, it is right that I should point out to him that he is not justified in adopting uncritically that most questionable of old maxims, *falsus in uno, falsus in omnibus*, and in rejecting in a body all my analyses, in case he finds me not wholly successful in this one, and decides that he must endeavor to throw light upon the distinction between the mind and the world in a fresh analysis undertaken by himself. He who would strive to make clear what is but dimly grasped in common thought, may very well succeed in part of his task, even if he be not successful in accomplishing the task as a whole.

The distinction between his mind and an external world to which it is related is, of course, perfectly well recognized by the plain man. Here I sit in my study and before my desk. I perceive the walls, the books, the desk, and distinguish between such things as these and my own mind. I do not appear to be concerned with an uncertain inference, a knowledge at one or more removes. I seem to be conscious of what is external and conscious also of my mind or self as a something contrasted with this.

Moreover, I recognize not merely the fact that my mind and the external world exist, but also the fact that my mind is related to a definite portion of the external world as it is not related to other portions. I have observed that I see with my eyes, hear with my ears, touch with my hands, smell with my nose, taste with my mouth, am pained when my body is cut, etc. These things are matters of observation: can I not close my eyes, stop my ears, take my hands off of my desk, and repeat such operations as often as I wish to do so? Even a baby soon learns that it cannot with impunity bite its finger as it is in the habit of biting other things; and the plainest of plain men recognizes that his mind is related to his body as it is not related to other material objects.

Thus, within the experience of the plain man we find a certain plan or system. The external world is contrasted with his mind, and the two are somewhat vaguely recognized as related in certain ways and not in others. There is much that is indefinite in such a recognition of the mind and the world. A man may be quite unable to define what he means by the external world and most uncertain as to the connotation of the word "mind," and yet may feel very sure that he is in some way conscious of both. He may feel

equally sure that the body may in some sense be regarded as the instrument through which the mind knows things, and yet hesitate to hazard even a conjecture as to the nature of the relation of body and mind. Whatever may remain dark to him, he cannot, before he falls into the hands of the metaphysician, doubt that the desk at which he sits is an external thing and a thing to be distinguished from his own mind, nor can he doubt that shutting his eyes and stopping his ears will make changes in his experience of a quite unique description. It is worthy of remark that it does not occur to him to gather up the whole of his experience and put it in his mind. His mind or consciousness does not mean to him the whole of his experience. It is a something in his experience distinguished from something else — it is a *part* or *aspect* of his experience. If it were not this, the distinction between the mind and the world could not be recognized by him at all. One term is not enough to furnish a contrast.

The distinctions thus recognized by the plain man science develops, as we have seen in earlier chapters of this volume. It does not take the material world to be the world of things which appear to be intuitively present when the distinction between mind and world is drawn in the experience of the plain man. It laboriously builds up a mechanical system and relates individual minds to this in more or less definite ways, or, at least, in ways which may be called more or less definite when contrasted with the utter indefiniteness of common thought.

It should be kept in mind that science does not, in all this, proceed arbitrarily. It insists that it has *observed fact* upon which to rest at every step. It tacitly assumes that the distinction between the mind and the world is a distinction within consciousness, and that the relations of the two are open to scientific investigation. When the psychologist says "my consciousness," he does not mean to include all experience, all existence, real or imaginary. He is marking a distinction, and feels that he has abundant reason to know that the things which he is distinguishing are given in experience.

In this he is entirely in the right; but he may, of course, fall into error when he attempts to tell what it is that he is thus distinguishing. The problem is by no means a simple one. In certain of the preceding chapters,[1] where the external world and the

[1] Chapters VIII, XV, XVI.

mind were discussed at some length, such experiences as colors, odors, and tastes were recognized as subjective, were gathered up and referred to the mind. The objective, external world was recognized to be a complex of touch-movement sensations, contrasted with these, and charged with the duty of bringing order into our experience as a whole.

But the reader will have seen that it is impossible to regard the distinction between the mind and the external world as identical with that between such sensations as taste or smell and sensations of touch and movement. He has seen that I have been unable to give an account of space and time and of the real world in space and time without distinguishing between what is intuitively present in the consciousness of the individual and that for which it stands as the symbol, between the appearance and the reality which it represents. It is not necessary for us to repudiate our former analyses, but it is necessary to complete them by pointing out more explicitly that the very word "sensation" carries with it a subjective suggestion of which it is desirable to get rid when we are concerned, not with the real world as it appears to this or that individual, but with the real world which we contrast with our experiences of it.[1]

This becomes more clear to us when we bear in mind that psychology, proceeding on the basis proper to it as a natural science, feels itself justified in regarding sensations of touch and movement as mere *copies* or *representatives in mind* of things external. To the psychologist as psychologist it would sound absurd to say that things *are* touch-movement sensations. Things are things, and sensations are sensations; we may observe the relations of the two to each other, but we must keep the two classes distinct if psychology is to do its work at all. If the psychologist be a metaphysician, he will, of course, make an effort to determine with some accuracy what he means by "things"; but it is not his duty as a metaphysician to rub out distinctions which he was, as a psychologist, justified in drawing. To the metaphysician, as well

[1] In Chapter VI I asked the reader to regard the account of sensation and of the external world given in that and in certain chapters following as provisional. In those chapters I spoke of the external world as composed of "sensations" or "sensational elements." This chapter will show why such a use of speech is not strictly correct; but I hope it will also show that I have been justified in using the words which I have used for lack of some better form of expression.

as to the psychologist, sensations must remain sensations, and must be distinguishable from "things."

The science of psychology does not proceed as it does without good reason. A study of the body seems to make it plain that sensations of all sorts are the result of a message sent along a nerve to the brain. If the eye be injured or the optic nerve severed, there are no sensations of sight; if the auditory nerve be diseased, it puts a stop to the reception of sensations of hearing; if a tumor presses upon the spinal cord, there are no sensations of touch when the foot is brought into contact with objects, or of movement when it is swung. Psychology can discover no reason for treating differently messages sent along nerves which stretch from the finger-tips to the brain, and those sent along nerves which extend to the brain from the eye or the ear. If any sensation is to be referred to "the telephone exchange," surely every sensation is to be so referred — a truth which, as we have seen in the last chapter, may lead those who imperfectly comprehend it into all sorts of confusions.

The error into which men fall at this point is a most natural one. Sensations of touch and movement seem to be the very stuff of which the real material world is composed. Sensations of all sorts, including sensations of touch and movement, are discovered to be the result of the stimulation of the peripheral end of a sensory nerve. The external world, then, cannot really be external, but must enjoy a merely fictitious externality. It must be an "internal" thing "projected outward."

It is odd that those who reason thus do not realize that "inner" and "outer" have no meaning, and "projection" becomes mere incoherence when one has resolved *things* into *sensations* and rubbed out the distinction between mind and world. It may mean something to put sensations into a telephone exchange, and to project certain things in imagination beyond the telephone exchange. But it cannot mean anything whatever to put *all* things, including the telephone exchange, into the telephone exchange, and then to "project" certain things "out" along wires which are not themselves "out." The psychologist has better sense than to make such a mistake as this. This is reserved for a metaphysician. The psychologist may not clearly comprehend the distinction between sensations and things, but he does not lose the distinction.

He defines a sensation as that which comes into being when a

message conveyed along a sensory nerve reaches certain parts of the brain. An occurrence takes place in the world of matter; a message starts from the periphery of the body; it reaches the brain appreciably later than the moment at which the occurrence took place. He regards the sensation as arising when, and only when, the message reaches the brain. The sensation, then, does not come into being for some little time after the occurrence has taken place. It is palpably absurd to identify the sensation with the external occurrence — the one may be past and gone before the other has begun to exist. Can the man who has the sensation know anything of the occurrence except through his sensation? Psychology says no, and at once we seem to be condemned to the disheartening inconsistencies of the doctrine of representative perception, to the hopeless effort to prove that there is a world beyond sensations when we are entirely shut up to sensations.

But, as we have seen all along, the psychologist does not take himself quite seriously in making such statements. He believes that it is quite possible to *prove* that a sensation takes place after the external occurrence that furnished its stimulus to the peripheral ending of the sensory nerve. He does not guess at this. He holds it to be matter of observation; and when we inspect his batteries, wires, keys, and revolving drums, we convince ourselves that it is a matter of scientific observation, and that his knowledge of the relations of the external occurrence to the sensation may have some approach to accuracy. We see clearly that when he says that a man is shut up to his sensations, he really means no more than that *in a sense* he is shut up to his sensations; and he does not mean to put him into such a state of isolation that the very word "sensation" becomes meaningless to him.

Our only problem, therefore, is to determine the sense in which a man is shut up to his sensations, and the sense in which he is not. In other words, we are to discover what is, at bottom, this psychological distinction between sensations and things, the denial of which leads to such palpable incoherence.

Let us begin with the common experience in which the external world seems to be revealed, and contrasted with mind, at almost every moment. Here I sit at my desk; I see it; I lay my hand on it. The desk is a real desk and known as part of a real mechanical system of things. I shut my eyes, I take my hand away. Never for a moment, unless I have been misled by the speculations

of some philosopher, does it occur to me to think that the desk has been annihilated. For the time being the desk has disappeared, it is no longer *perceived*.

The distinction is an extremely important one, and marks the fact that the elements of experience may take their place in two very different constructs, which, however, be it remarked, are by no means independent of each other. Of the nature of the construct which we call the external world I have treated at length in chapters preceding. We have seen that there is there no distinction of consciousness-elements as dim and vivid, as imaginary and sensational. All this is abstracted from when we are concerned with what is material. Yet such distinctions undoubtedly occur within our experience, and their significance must not be overlooked. They belong as a class to what has been called the subjective order of things as contrasted with the objective. What is this subjective order?

In the experience above referred to, even a child can recognize the significance of the changes which take place in my body. Whether the eyes are open or shut, or the hand is on or off of the desk, makes all the difference in the world to the subjective order. The urchin who alternately stops and unstops his ears to make the preacher sing an unearthly tune, never supposes that he is interfering with the actual delivery of the sermon. He knows that he is playing with one of his senses, that he is changing the subjective order, not the objective. The two may sometimes be confused, as when a young child shuts its own eyes to prevent other persons from seeing it; but, in general, the distinction is one pretty clearly recognized even by the least reflective.

And to one who reflects a little it becomes evident that the whole of the subjective order is intimately bound up with the changes which take place in his body. Receding from a tree makes it seem small and blue; we do not think that the tree has changed, but we realize that the impression made upon our body is not what it was before, and thus we account for the change in our experience. The longer we hold a weight, the heavier it grows, but we do not think that the weight has changed; we say that our muscles and nerves are feeling the strain. Every subjective change, if it is to find an explanation at all, must find its explanation in the objective material system of things, upon the shoulders of which is laid, as we have seen, the duty of ordering

our experience as a whole. There are a multitude of subjective changes which cannot as yet be so accounted for, but that only means that the ordering of experience is incomplete, or, in other words, that we are ignorant.

The fact that the subjective order is bound up with the body and the changes which take place in it is, then, recognized by the plain man. To him it is one thing to say, "The tree exists," and another to say, "I see the tree"; it is one thing to say, "The water is hot," and another to say, "I feel heat." He is not thrown into confusion by observing that the water may feel hot to one hand and cold to another, for he has learned to draw the perfectly justifiable distinction between qualities of things and sensations. He recognizes the two orders to be two, if not explicitly in all cases, at least implicitly, and he can make good use of the distinction. And what he does instinctively, and in a somewhat blundering way, the psychologist does more thoroughly and accurately. He makes it his duty to investigate the subjective order, and to determine more narrowly the relations between phenomena which, as belonging to it, are recognized as mental, and the bodily changes through which such phenomena are related to the world of matter.

But, it may be objected, what has all this discussion of the subjective order and the objective order to do with extricating the psychologist from the trap in which he appears to have placed himself? Here I sit before my desk and look at it. The psychologist tells me that the desk is one thing, and the sensations I derive from it another. Of which am I conscious? What is the desk which I seem to see? Is it *external?* Then what are the sensations? I do not seem to myself to be conscious of my sensations as a something given in addition to the desk; as a copy given side by side with the original. To admit the existence of such copies in consciousness side by side with the original would contradict some of the fundamental doctrines of the psychologist. Is, then, this desk *sensation*, or, to speak more accurately, is it *percept?* Is it *internal?* Then how is it possible for me to know that it is in any way related to a desk truly external? How can I know, in other words, that it is *sensation* or *percept?* The difficulty seems to be that, in the initial experience which furnishes the ultimate foundation for all that I can say about sensations and things, but one thing appears to present itself, *i.e.* this desk,

and this one thing the psychologist, following the lead of the plain man, asks me to separate into two things, — an original and a copy, — and to relegate them to different worlds.

If, however, we scrutinize more carefully the experience in question, we shall find abundant justification for the distinctions drawn by the psychologist, and shall find, moreover, that the distinction of the subjective and the objective order has everything to do with the solution of the problem. In the chapters which treat of the external world I have pointed out at length that a group of consciousness-elements must be recognized as having its place in a certain orderly system before we can regard it as constituting a real thing. Considered in itself and abstracted from all relation to other experiences, it is just what it is, *i.e.* such and such a group of elements; but it is not a material thing, and is not a part of the external world. And the most cursory glance at our treatises on psychology, or, for that matter, a little reflection upon what the word "sensation" means even to the plain man, will reveal that, for an experience to be recognized as a sensation, it must be referred to the subjective order, it must be distinguished from what has its place in the external world, and must be related in a peculiar way to a certain organized body. The isolated bit of experience — if such a thing may be called a bit of experience — is neither a sensation nor a thing.

With this in mind let us examine the experience to which we must all come back if we are to have ground of any sort under our feet. I have said that one thing appears to present itself, *i.e.* the desk, and have asked whether this is to be taken as thing or as sensation. But it ought to be evident that there is an ambiguity in the very question. *In itself considered*, this bit of experience cannot be either thing or sensation.

It is not *given* as either, if by the use of the word "given" we mean to exclude its reference to a greater complex. It is *given* as both, if we mean that it can be referred to, and can take its place in, both orders, the subjective and the objective. As a matter of fact, the experience always takes its place in the one connection or the other, except perhaps at the very beginning of conscious life, or at the moment of abstraction when the philosopher is striving to distinguish clearly between what a thing is in itself and what it is in this or that relation to other things.

And it should not be overlooked that the experience takes its

place more readily and naturally in the objective order than in the subjective. This is a commonplace of psychology, and is recognized by us all in the accepted statement that children, and, indeed, most men, pay much more attention to what takes place in the external world than they do to the phenomena of their own minds. The desk is the desk to the child, *i.e.* it is a part of the same system of things with the rest of the furniture of the room and with his body long before it is consciously viewed as sensation. This does not mean that the subjective order is not recognized by the child implicitly. It only means that it stands out with less clearness than the other, and that any experience which can form part of the objective order is more apt to present itself in that connection than in the other.

This is true of grown men, as well as of children. When, therefore, I ask myself: Is the one thing here before me the external desk or the sensation? it is highly probable that the experience has already taken its place in the objective order. The words "here before me" seem to be enough to indicate that it has done so. And if this be so, it is absurd to ask whether the experience be "thing" or "sensation." The desk is a thing, and it cannot be a sensation.

This, then, is not the sensation. But where is the sensation? Psychology refers it to the brain, and seems to give it a place, in some sense of the word, other than the place of the external object. I have already indicated that, when the external thing is a momentary occurrence, the sensation assumed to represent it is assigned a time different from that of the occurrence itself. In the next chapter I shall investigate more narrowly what is meant by assigning to sensations a time and a place; but it is enough here to point out that both the plain man and the psychologist treat sensations somewhat after the analogy of material things.

If, then, I think of something external as belonging to a given time and place, and, following the example which has been set for me, think of the corresponding sensation as belonging to another time and place, it is natural that I should be puzzled when I ask myself how, out of the one experience which I seem to have as I look at my desk, I shall extract the dual existence of thing and sensation. I am apt to look for the sensation in the same objective order as the thing, and to look for it in another part of the same order — to seek to find outside of the body and in the brain

the original and the copy. But no such thing is to be found in experience. No man is conscious of the photograph of a desk and the desk itself. To pass from thing to sensation we must leave the objective order and turn to the subjective order, and it is not easy to do this in a wholly satisfactory fashion, for we all have a tendency to conceive things subjective after a material analogy.

That they are so conceived by the interactionist was made plain in the chapter on "The Atomic Self," and it there became evident that the material analogy of which he makes use quite obscures for him the distinction of the mental and the material. That they are so conceived by the parallelist was shown in the chapters on "Parallelism"; but it becomes evident, I hope, that the parallelistic doctrine, while it seems to conceive of a man's mind as related to his head much as a saint's halo is related to his crown, and while, when it tries to grow metaphysical, it falls back upon material analogies to explain the constancy of this relation, nevertheless is greatly to be preferred to the doctrine of the interactionist. For one thing, it does not declare defective the wonderful mechanism of the external world; and, for another, it denies that sensations are to be found in the same world with things, which means that it does not confound the objective and the subjective orders of experience.

Now there is no objection to our making use of material analogies in conceiving things mental. That we should make use of them to some degree seems unavoidable. It is, however, in the highest degree important that we should not be misled into taking them too seriously. It is most convenient to represent diagrammatically the mind and the world under the figure suggested by the parallelist, but it is well to remember that this is only a figure, and must not be accepted literally. We must keep ourselves mindful of the fact that the parallelist insists that the objective and the subjective really belong to different worlds and must not be placed literally side-by-side. If we forget this aspect of his doctrine, we do him a grave injustice.

If, then, we cast in our lot with the parallelist, — and if we are wise, we will do this, — not forgetting to make due allowance for the diagrammatic character of the figure employed by him, we will not expect to find in any intuitive experience the original and the copy for which men are so apt to look. We shall understand that by the original, the external thing, is meant an experienced con-

tent recognized as having its place in the objective order, as forming part of the material world; while by the copy, the representative, the sensation, is meant this content recognized as having its place in the subjective order, as related to the changes which take place in the body.

Shall we, then, say that the one experience is both material thing and sensation, the one in the one connection, and the other in the other? It is a fair question to ask whether, and in what sense, the experience may be called one, when one is speaking thus. The *thing* is certainly not the *sensation;* they may perfectly well be distinguished and kept apart. We can conceive of the thing as existing when the sensation no longer exists — when the human body, through which, as we say, the thing has become known, has been destroyed. Every man who makes his will draws this distinction between the existence of the thing and the existence of the sensation. He knows perfectly well that it is one thing for the world to go on existing, and another for him to know it, which only means that he can distinguish between the objective order and the subjective, and that he does not confuse the one construct with the other.

Thus it seems sufficiently plain that the parallelist, in insisting upon the complete separation of sensations and things, has laid hold of a truth. In forgetting that he is employing a figure somewhat loosely, he is betrayed into speaking in such a way that he set us wondering how an external world can be known at all. But, when we understand him, we can approve his position, and we can moreover justify the psychologist in maintaining that we can know no more of the external world than is revealed to us through our sensations.

Every element of experience may take its place in the subjective order, *i.e.* may be regarded as sensation. Even that which I, at one moment of my experience, regard as objective, may at the next moment be contrasted as subjective with another objective. In the chapters on "Appearance and Reality," we have seen how the external world is pushed farther and farther off, so to speak, by successive acts of reflection. The psychologist's affirmation that the external world can be known to us only through sensation is the recognition of this truth, that there is no experience that cannot conceivably be regarded as having its place in the subjective order. Even the external world of which science speaks, the

imperceptible world of ether, atoms, and molecules, may be regarded as the highest ideal which the human mind has as yet succeeded in building up, as our nearest approximation to the truth, and may be contrasted with the real world as it is. Of course, when we thus think it, we are not thinking of it as the real world: we are thinking of it merely as our thought of the real world, and there is present the psychological suggestion which is always present when we contrast thing and sensation.

One may pass from the objective order to the subjective at any moment, and whatever be the experience with which we are concerned. There is, thus, a sense in which we can say that our knowledge of things cannot extend beyond what is given in sensation; but it must be apparent to the discriminating reader that if it were impossible to pass as well from the subjective order to the objective, the above statement would be meaningless, for no significance would attach to the expression "our knowledge of things."

I suppose there are few who have interested themselves in the history of philosophy who are not acquainted with Sir William Hamilton's chapters on the "Relativity of Knowledge." It will be remembered that Sir William compares[1] external existence to a polygon with a multitude of facets, only a few of which are turned toward us. He points out that our avenues of sense are few, and argues that we have no reason to limit the modes of existence to the extremely small number revealed to us through our organs of sense. He quotes with approval Voltaire's parable, in which the inhabitants of one of the planets of the dog-star are allowed a thousand senses, and yet complain that the number is too limited. The moral of the whole discussion is that, had we still other organs of sense we should see the world in new guises, and should enjoy a richer and more varied experience than that which we enjoy at present.

It is not necessary to accept Sir William's theory of knowledge in order to see the significance of the truth that he is here endeavoring to express. It has been a thought common to many minds, that, were our organs of sense different, our sensations would be different; and were our sensations different, the world revealed in our experience would not be what it is. One can hold this perfectly well without taking literally the diagrammatic scheme of

[1] "Lectures on Metaphysics," VIII.

original and copy. The recognition of the subjective order, the recognition of sensations as sensations, is the recognition of our experiences as related to bodily changes. We press upon one eye, external things seem to be doubled; we suffer from an indigestion, what we before recognized as sweet has become bitter and unpalatable. We perceive in the world many organized bodies more or less nearly resembling our own, and we make allowance for these differences, attributing to the various creatures more or less different sensations.

And, as it is possible to refer every experience to the subjective order, treating it as sensation, it is quite possible for the man who has reflected upon such facts as these, to conclude that those elements of his experience which, when referred to the subjective order, he calls touch-movement sensations, and which, when referred to the objective, form the very stuff of which the external world is made, may not, in the experience of some creature, play the rôle that they play in his own. In other words, he may conceive of an external world revealed to some other creature — perhaps to himself under changed circumstances — not in touch-movement sensations, but in experiences of some other sort. It is not absurd to speak of such possibilities, and they readily suggest themselves to the psychologist with a speculative turn of mind.

It should be remarked, however, that the man who says, "If our human brains and sense-organs were different, we should perceive a different world," has no right to deny that our experience, such as it is, is a revelation of truth. If there is to be any truth in his conclusion, there must be truth in the premises from which it is deduced; that is to say, he remains in the one system of experiences throughout, merely passing from one construction to another, and he has no reason to believe himself at any point the dupe of "mere appearance," or to assume the existence of a "beyond," which forms no part of the system.

It is, then, perfectly legitimate to speculate touching the possible existence of new senses, new sensations, new modes in which the external world may conceivably be revealed. It is only necessary to bear in mind that we are everywhere concerned with the subjective order and the objective order of experience, and with constructions therein. An "unknowable," a "thing-in-itself" has evidently no part to play in the whole process. One can draw every distinction which it is necessary to draw without ever refer-

ring to such a thing. Its assumption is due to an imperfect apprehension of what is meant by the distinction of subjective and objective. Wherever such an assumption may be found, it betrays at least a trace of the tendency so evident in the plain man and even in the psychologist to take too literally the material analogy by which we make comprehensible to ourselves the distinction of mind and world.

We can see, thus, that much may be said for the psychological standpoint which has been so often discussed in the chapters preceding. Its very inconsistency is its salvation, for it is perfectly true that, *in a sense*, the mind is cut off from the external world, and that, *in a sense*, it is not. The distinction between the subjective order and the objective order of experience must be drawn, and must not be obliterated.

The fact that it is extremely difficult to draw it clearly, and to avoid passing unconsciously from the one order to the other, is borne in upon us when we turn to what certain writers, commonly regarded as very clear and straightforward, have had to say upon the subject. I have already had occasion to point out[1] that John Stuart Mill, in defining material things as "permanent possibilities of sensation," passes from the objective order to the subjective, and introduces a psychological suggestion from which the notion of external things should be freed. When we examine his account of what is meant by the mind, we discover evidences of the same imperfect apprehension of what constitutes the two orders of experience. He writes:[2] —

"The permanent possibility of feeling, which forms my notion of myself, is distinguished by important differences from the permanent possibilities of sensation which form my notion of what I call external objects. In the first place, each of these last represents a small and perfectly definite part of the series, which, in its entireness, forms my conscious existence — a single group of possible sensations, which experience tells me I might expect to have under certain conditions; as distinguished from mere vague and indefinite possibilities, which are considered such only because they are not known to be impossibilities. My notion of myself, on the contrary, includes all possibilities of sensation, definite or indefinite, certified by experience or not, which I may imagine inserted

[1] Chapter VII.

[2] "Examination of Sir W. Hamilton's Philosophy," Vol. 2, Chapter XII.

in the series of my actual and conscious states. In the second place, the permanent possibilities which I call outward objects, are possibilities of sensation only, while the series which I call myself includes, along with and as called up by these, thoughts, emotions, and volitions, and permanent possibilities of such. Besides that these states of mind are, to our consciousness, generically distinct from the sensations of our outward senses, they are further distinguished from them by not occurring in groups, consisting of separate elements which coexist, or may be made to coexist, with one another. Lastly (and this difference is the most important of all), the possibilities of sensation, which are called outward objects, are possibilities of it to other beings as well as to me; but the particular series of feelings which constitute my own life is confined to myself, no other sentient being shares it with me."

In the above extract, Mill does not attempt a detailed description of the contents of a mind or self, and even if he did so it would not be worth while for me to criticise it at length here. Psychology has made strides since his day, and it is possible to draw up now a better inventory of the furniture of a mind than it was not many years since. It is, of course, quite true that we think of minds as containing much besides sensations, though I have not dwelt upon this in the present chapter, as I have found it convenient to defer for the present the consideration of any other element than sensation. I merely wish to draw attention to the fact that Mill does not make the distinction between the subjective order and the objective order a very clear one, for he appears to make the objective order *a part* of the subjective.

It will not do to say that an external object represents "a small and perfectly definite part of the series which, in its entireness, forms my conscious existence," while the self includes the whole series. As we have seen, an external object is not, as external object, a group of sensations whether actual or possible, and must not, as external, be made part of a mind. What is meant by the statement that external objects are shared with me by other beings will be investigated later, but there is certainly a sense in which we may say that two men perceive the same tree. It is as certainly nonsense to say that two men share the same sensation. The difficulty in which Mill has entangled himself comes clearly to the surface in his concluding

sentence. If "the particular series of feelings which constitutes my own life, is confined to myself," and if, as we have seen, my notion of myself includes all possibilities of sensation whatever, it is difficult to see what there is left to share with another after we have made external objects a small and definite part of the all-inclusive group of experiences that cannot be shared.

It is easy to see what Mill is trying to say in this extract. It is also easy to see that he has not succeeded in saying it in such a way as to avoid inconsistency. It is not without significance that in this attempt to distinguish between the mental and the physical, he passes over in silence the reference of sensations to the body, the contrasting of sensation with what is not sensation. Every man who turns things into sensations must lose the real distinction between the mind and the world. In apprehending one truth — the truth that there is no experience which may not be referred to the subjective order — he has lost sight of another, namely, the truth that sensations are not things, nor things sensations, and that they must not be talked about in the same way.

The same confusion is clearly traceable in the writings of Professor Clifford, who, in his essay "On the Nature of Things-in-themselves," expresses himself as follows: —

"My feelings arrange and order themselves in two distinct ways. There is the internal or subjective order, in which sorrow succeeds the hearing of bad news, or the abstraction 'dog' symbolizes the perception of many different dogs. And there is the external or objective order, in which the sensation of letting go is followed by the sight of a falling object and the sound of its fall. The objective order, *quâ* order, is treated by physical science, which investigates the uniform relations of *objects* in time and space. Here the word 'object' (or 'phenomenon') is taken merely to mean a group of my feelings, which persists as a group in a certain manner; for I am at present considering only the objective order of my feelings. The object, then, is a set of changes *in* my consciousness, and not anything out of it. Here is as yet no metaphysical doctrine, but only a fixing of the meaning of a word. We may subsequently find reason to infer that there is something which is not object, but which corresponds in a certain way with the object; this will be a metaphysical doctrine, and neither it nor its denial is involved in the present determination of meaning. But the determination must be taken as extending to all those inferences which are made

by science in the objective order. If I hold that there is hydrogen in the sun, I mean that if I could get some of it in a bottle, and explode it with half its volume of oxygen, I should get that group of possible sensations which we call 'water.' The inferences of physical science are all inferences of my real or possible feelings; inferences of something actually or potentially in my consciousness, not of anything outside of it."

The confusion of subjective and objective is here so plain that it appears scarcely necessary to comment upon it. *Objects in time and space* are made *groups of my feelings;* that is to say, they are placed in the subjective order, and are treated as sensations, not as external things. With groups of my feelings physical science is not concerned. The science which occupies itself with them is psychology, and that science does not mistake them for external things at all. Nor can one fall into a more serious misapprehension than to suppose that the inferences of physical science are "inferences of something actually or potentially in my consciousness," for the words "my consciousness" imply an unmistakable reference to the subjective order; "my consciousness" is nothing other than the sum total of "my feelings." When the objective order is thus absorbed into the subjective, the telephone exchange has been drawn into the clerk, and the perplexities of the man who looks at the candlestick have begun.

A little reflection shows, moreover, that it will not do to make everything sensation and then secure for ourselves the mere semblance of an external world by the "projection outside" of what is really "inside." Professor Pearson has abundantly illustrated the futility of this attempt in his picture of the unhappy clerk who must at once contain his exchange and be contained by it. We can see now that his difficulty arises from the fact that, like Mill and Clifford, he makes the subjective order all-inclusive, and yet endeavors to retain an objective order of some sort as a part of the former. It results from this that the external object must be at once sensation and external object, subjective and not subjective. This contradictory rôle it is, of course, impossible for it to play. In so far as it is sensation, it cannot be thing; and in so far as it is thing, it cannot be sensation.

The rather common tendency to grant a certain chronological or logical priority to sensations, and to conceive the external world to be constructed out of them, seems to be due in part to what has

been so happily called the psychologist's fallacy. We speak of an infant as having sensations before the complex called its perception of an external world has as yet been built up in its experience. What we call its sensations are very properly called such, *from our point of view*. We distinguish between its sensations and its body, and relate its sensations to its body in certain rather definite ways. In other words, we refer the experiences in question to the subjective order, and it is because we do this that we call them sensations. But from *the point of view of the infant*, if it can be said to have a point of view, the experiences are not sensations, for they are not supposed to be referred to any order at all. When experiences come to be regarded as "inner," it means that the two orders, inner and outer, have come to be distinguished, however dimly. It is not more sensible to say that sensations are chronologically or logically prior to things, than it is to say that the inside of a hat is chronologically or logically prior to the outside.

CHAPTER XXIV

THE TIME AND PLACE OF SENSATIONS AND IDEAS

Thus we see that sensations, in order to be sensations, must not be isolated shreds of experience, but must stand in a certain context. They must be contrasted with and related to a world of material things; and more especially must they be related to that most important of material things, the body.

This doctrine is entirely in harmony with the somewhat vague deliverances of common thought. Every one who comes to distinguish between sensations and things refers sensations in some way to the body. By the unreflective this reference is most naturally and easily accomplished by treating sensations very much as though they were material things of a somewhat peculiar order, and by putting them *in* the body in a material sense. As we have seen, this materializing tendency on the part of the plain man is raised to the rank of a philosophical position in the ancient and still popular doctrine of the atomic self, the doctrine of the interactionist. He who would place the self literally in the body, or set sensations to simmering "in the same vat" with brain motions, has fallen into an error which is the direct opposite of the one commented upon at the close of the last chapter. We there saw that certain philosophers have been misled into obliterating the distinction between the objective order and the subjective order by declaring external things to be sensations. Here the same distinction is obliterated by giving what is subjective a place in the objective order.

Perhaps I would better say the distinction is obscured, for it is never wholly obliterated. The interactionist does not, as we have seen, turn sensations, ideas of "selves," into purely material things, for he cannot wholly overlook the fact that such things have their place in the subjective order. He makes them vaguely and inconsistently material. But whatever the degree of his vagueness and inconsistency, he holds tenaciously, as he should, to the bodily

reference which cannot be overlooked if any experience is to be regarded as belonging to the subjective order.

It is interesting to remark that those who explicitly resolve external things into sensations are as unable to dispense with this bodily reference as is any one else. It is true that in the extract quoted in the last chapter, Mill attempts to distinguish between the mind and the world without referring to the body at all. But it is also true that, immediately afterward, when he is stating the argument for the existence of other minds, he at once takes up what he has overlooked before, and founds his argument upon it. Clifford, when he has turned "objects in time and space" into groups of "my feelings," seems to have made impossible any relation between my feelings as a whole and any external object whatever; and yet, in his argument for parallelism, we not only find him referring mental facts to the body, but specifying to what particular part of the body they are to be referred: "the mental fact is somewhere or other in the region *RCCB* of the diagram, and does not include the two ends."[1] And as for Professor Pearson, he keeps putting sensations "at the brain-terminals of the sensory nerves," even when nerves and brain have been themselves declared "inside" and are looking around in vain for a terminal at which to place themselves.

Psychology and cerebral physiology, of course, emphasize the bodily reference of sensations. In the existing state of our knowledge the psychologist and the physiologist are not forced to declare themselves either for interaction or for parallelism. They may do good work in their respective fields without trying to make very clear what they mean by "localization," or just how they are to conceive of mind and matter as related. But that mental phenomena are related to the changes which take place in the body, and that it is their duty to discover as many such relations as possible, and to substitute, where they can, accurate and definite information for the vague knowledge of the plain man, they seem generally to assume as self-evident. In some sense of the words, they assign to sensations, as does the plain man, their *time* and *place* of being. If we refuse to follow them in this, we seem to repudiate outright a mass of material that has been heaped together by certain sciences, which are, it is true, highly incomplete, but which we surely cannot regard as speaking without some authority.

[1] See Chapter XIX.

Philosophers of many schools have been at one in allowing to what have sometimes been called the phenomena of the internal sense an existence in time. That a sensation may come into being at this moment rather than at that men have not been tempted to dispute. But a venerable tradition has denied to mental phenomena an existence in space, or at any rate such an unequivocal existence in space as is enjoyed by material things. The ubiquitous "*tota in toto*" soul of Plotinus and of the Schoolmen is, as we have seen,[1] *in* the body in a very dubious sense of the word. Descartes, to whom the presence of the soul in the little pineal gland was as the presence of the engineer in the cab of his locomotive, was yet unwilling to declare himself for a definite and unambiguous localization. The echo of this ancient tradition, as we find it in the mind of the plain man to-day, unmistakably shows a disinclination to attribute to mental phenomena space-relations proper, notwithstanding the strong tendency to conceive of things mental after the analogy of things material. Men generally object to saying that sensations and ideas are extended and occupy space, and the psychologist shares the general objection.

We appear, thus, to be confronted with conflicting tendencies. On the one hand, there is the impulse to give to mental phenomena a definite place in the system of things as a whole by assigning to them their moment of time and their location in space; on the other, there is the feeling that location in space, at least, cannot be frankly granted them. This conflict of tendencies usually results in much indefiniteness touching the nature of mental phenomena and the manner of their existence. It seems possible to do away with this vagueness, in part, at least, by determining more precisely in what sense it is permissible to assign to mental phenomena a time and place.

Let us suppose a plain man to be watching from a distance a laborer striking blows with his sledge upon the track of a railroad. He hears the sound when he sees the hammer in the air, not when he sees it touch the track. But he does not refer the sensation to the upward stroke, for he allows for the time it takes the sound, as he expresses it, to reach his ear. In other words, he distinguishes between the time of some occurrence in the external world and the time of his sensation, fixing the latter at the instant at which some impression is made upon his body. Such experiences as the

[1] Chapter XVII.

above make it quite comprehensible to him, when he has once been informed of the fact, that he might continue to see the sun for some time after the complete annihilation of that body. He has only to think that, as the sound reached his ear later than the blow to which he referred it, so the light will travel toward his eye even when the blaze which gave it birth has been extinguished.

With this distinction between the time of some external occurrence and the time of the sensation referred to it, the psychologist has no quarrel save on the score of lack of accuracy. To say that one hears a sound when a certain disturbance in the air reaches the ear, or that one has a sensation of sight when light reaches the eye, is, he thinks, loose and inexact. His endeavor is to fix more definitely the time at which sensations come into being.

He introduces me to a rather simple bit of mechanism so constructed as to let fall a shutter and to record the exact moment of its fall. I place my finger upon a key, pressure upon which is to record the moment at which I perceive the shutter to fall. When I have made the movement and read off the result, I discover a discrepancy between the record I have made and the automatic record made by the machine. I say that an appreciable time has elapsed between the actual fall of the shutter and the emergence in my consciousness of the visual sensation.

I cannot account for the discrepancy by saying that the time was lost in the passage of the rays of light from the falling shutter to my eye. The motion of light-waves is so inconceivably rapid that the time lost thus is inappreciable. As a result of his researches, the psychologist is ready to describe the moments which have elapsed, as the time taken by the passage of a certain impulse through the body, from eye to brain, and from brain to finger. He even divides up somewhat roughly the whole interval, distinguishing between time taken up by the disturbance in the sense-organ, by the journey of the message along the sensory nerve to the brain, by the passage through the brain, by the journey of the message along the motor nerve, and by the contraction of the muscles. These subdivisions of the whole interval he is by no means in a position to measure accurately; but the mere recognition of their existence is enough to prevent him from accepting the time of the record I have made as the true time of the sensation. The time of my sensation is somewhere between

the two times recorded, and the psychologist assumes — not without reason — that the true time is that at which the message passed through the brain or some part of the brain.

In the present state of cerebral physiology it is useless to ask precisely what part; no man is in a position to say exactly what disturbance in the brain is to be assumed to be connected most intimately with this or that sensation. The parallelist may speak enthusiastically of a "point for point" correspondence, but he should admit that in speaking thus he is describing an as yet unattained ideal, and is not giving an accurate account of what is definitely known. He cannot relate given mental phenomena to given molecular motions in the brain, for we really know nothing of such molecular motions. Even that vaguer localization which would fix the time of the emergence of a sensation at the moment when a particular region of the brain is thrown into agitation is a matter of much dispute. It is impossible to say how much of the brain must be concerned in the disturbance with which we connect any mental fact.

But, admitting all this, no reasonable man will affirm that the labors of the psychologist and physiologist have been in vain. The vague reference of sensations to the body, which we find in common thought, has been made more explicit. The time of the sensations has been fixed within narrower limits, and it is conceivable that, with the growth of human knowledge, it may come to be fixed within much narrower limits still. We may some day discover to just what cerebral disturbance a given mental fact is to be referred, and we may determine with exactitude the time of the beginning and the end of this disturbance.

It may be objected that, in doing this, one is, after all, determining only the time of certain occurrences in the material world, and not fixing the time of the sensation itself. But what else than this can it mean to determine the time of a sensation? The time which we seek is evidently *real* time. There is but one real time. The real time of an occurrence means the point, in the series of changes which constitute the life-history of the real world, at which the occurrence takes place. The sensation, *as sensation*, cannot be assigned a place in this series of changes. When we speak of its time — its real time — we can only mean the time of that material change to which we relate the sensation as the plain man relates his sensations to his body. It is this that we endeavor

to determine in psychological investigations, as becomes clear when we study the actual procedure of the psychologist.

That we are concerned with real time, the time of the external world, becomes the more apparent when we call to mind the distinction drawn by plain man and psychologist alike, between real time and apparent. The weary occupant of the pew knows that the tiresome sermon only seems long; the experimenter with narcotics knows that whole ages may seem to pass in what is really a brief interval; such words as *pastime*, *passetemps*, *Zeitvertreib*, hold the distinction in a state of crystallization, and embody the universal experience that certain hours are, subjectively considered, much longer than others. No schoolboy supposes that the clock loiters in the morning and makes up for its laziness in the afternoon, when he is on the playground. Real time and apparent time are recognized by every one, and sometimes the psychologist occupies himself with the one and sometimes with the other; but when it is a question of the moment at which a sensation comes into being, or of the actual duration of a sensation, what he is concerned with is the real time. To determine this real time he must discover what bodily change it is that may be most directly related to the mental experience.

We have seen that there has been a tendency to admit that mental phenomena may exist in time, while there has been much more hesitation in admitting that they may exist in space. Perhaps this is in part due to the fact, that many different occurrences may be referred to the same moment, without crowding each other out of existence; whereas, it seems to be our experience that but one material thing can occupy a given space at a given time. I may somewhat loosely refer a sensation and the corresponding cerebral disturbance to the same moment of time, without being conscious of assimilating the one to the other, and of making the sensation material. But if I assign to mental phenomena a place — literally a place — I seem at once to turn them into material things, which occupy their place to the exclusion of other things. If I hesitate to make them so palpably material, and assign to them no definite place of their own, but place "in general," I create a phantom, an irresponsible Plotinic soul, a creature of mere verbal draperies. We have no experience of anything that occupies space in this abnormal way. There seems to be but one way of occupying space, and to occupy it in that way a thing must be

unequivocally material. It is, hence, natural that men who have grasped even indefinitely the distinction between the subjective order and the objective should hesitate to assign to mental phenomena a location in space.

Of course, it is evident to the discriminating mind that mental phenomena cannot literally be assigned a place in real time, any more than they can be assigned a position in real space. Real time is an aspect of the external world just as truly as is real space, and we have just seen that to determine the real time of a mental fact means no more than to determine the time of the corresponding bodily change. But just as we can determine more or less definitely the time of the bodily change to which we refer a mental fact, and can thus, in a sense, determine the time of the mental fact, so we can more or less definitely determine the part of the body concerned most intimately in the occurrence, and thus, in a sense, *localize* the mental phenomenon.

It is not nonsense to speak of sensations as in the brain, or at the brain, as the psychologist so often does. It is merely a loose and rather misleading way of expressing an undoubted truth. The sentence becomes nonsensical only when it is taken too literally. The exact determination of the cerebral disturbance that we are justified in connecting with any mental phenomenon is the only possible determination of the time and place of the phenomenon. It is this that gives it its bond of connection with the real world, and makes it the experience of such and such a person at such and such a time — *an experience to be distinguished from every other which has been, is, or shall be.*

In the above pages I have, for convenience, concerned myself chiefly with sensations, but what has been said applies to all mental phenomena equally. When the plain man thinks about the matter at all, he puts the contents of his memory and imagination into his mind as he does his sensations, and he refers his mind to his body. The psychologist distinguishes much more carefully between presentative and representative mental contents, and refers the latter, not to a cerebral disturbance initiated by a message conducted along a sensory nerve, but to one which is centrally initiated, or, at least, to one which owes its character to the traces left by earlier messages conducted along sensory nerves.

The proof of the fact that all ideas, as well as all sensations, have what is sometimes called a physical basis, we may leave to

the psychologist. It can manifestly not be proved in complete detail, and it can certainly not be proved in such a way as to convince those who are unwilling to believe it. It is enough to say here that it is in the direct line of the evidence so far furnished by the development of the sciences of physiology and psychology. Acceptance of the fact does not in the least imply a tendency to materialize mental phenomena. It signifies merely that they are not left at loose ends, and without definite relation to the real world. It means that their time and place of existence, in the only sense in which the real time and place of anything in the subjective order can be spoken of at all, can be, theoretically at least, determined. It means that the system of things as a whole, the universe which contains minds as well as material things, is a Cosmos throughout, and that its order seems to us now indefinite and more or less chaotic only because we are ignorant.

That men generally are in the habit of assigning a time and a place to mental phenomena of all sorts in a certain vague and indefinite way can hardly be denied. That the lack of clearness in their thought leads them into embarrassments, when one endeavors to get them to state what they really do believe, is equally evident.

When, for example, I ask the undergraduate, who is for the first time seriously struggling with the difficulties of reflection, to imagine the City Hall, and then ask him where the image is, I am promptly informed that it is in his mind. When I ask the size of the image, he scents a trap and hesitates. The image is in his mind and his mind is in his body; it is, therefore, impossible that the image should be nearly as large as it seems. He hazards the guess that, although it seems large, it must be small, and must represent the original as a photograph represents an object greater than itself. Where is this hypothetical little image? Presumably in the brain. Is he conscious, when he imagines the City Hall, of anything like a little image in the brain? Not in the least; it is a mere matter of inference. But if this image which seems to stand so clearly before him is really in a place in which it does not in the least seem to be, and is really a minute thing when it seems to be an enormous one, how does he know that he is not always fed with illusions? Is anything where it seems to be, and as big as it seems to be? He is willing to affirm that some things are, but he finds himself unable to offer evidence of the fact. It is a

thing to be accepted — "everybody knows" that real buildings are not like pictures in the imagination.

If, for the sake of argument, I accept the dictum of "everybody," and merely inquire more narrowly into his notion of how this little picture exists in the brain, I find him loath to enlighten me. However small the image, it seems self-evident that, to be an image at all, it must have some extension. Am I to conceive of that long row of windows as really stretching across the image? Are they really side by side in the brain, so that the row occupies space there? What I seem to be conscious of, the varied expanse of color, cannot literally be there, for the place is as dark as Egypt, and it is no place for colors. What, then, is there? Surely nothing that is enough of a picture to be looked for as men look for such things elsewhere. The existence of the picture on the retina of the eye is not merely admitted by "everybody," but is a thing to be proved. The man who doubts the existence of such in his own eyes, may, if he chooses, take out one eye, remove the sclerotic coat from the back of it, and inspect the picture on the transparent retina with the eye that remains to him. The existence of the little picture in the brain, on the other hand, seems to be analogous to the existence of Mrs. Harris — evident to but one person, and doubtfully evident to that one.

The more the student reflects upon the matter, the more disinclined is he to stand out boldly for the little picture in the brain. He can be brought to see that one cannot grant the thing extension without assigning it a place, and a right to a certain amount of space, and that he who does this materializes it. He realizes that he cannot admit it to be material in any proper sense of the word. It cannot be looked for as can material things. He may consequently fall in with the ancient tradition and deny to mental phenomena any extension whatever. His image is now, not merely a small image, but it is no image at all; it has no part out of part. It represents things which have parts, in some unknown and inscrutable way, but it represents them without being in the least like them.

The tendency which has resulted in such a treatment of mental phenomena seems to have reached its limit in the insistence by an eminent psychologist of our own day upon the fact that the total content of a consciousness at any moment must be conceived as an indivisible unit, as totally without parts. When the student is

introduced to this doctrine it seems to him that something can be said for it. The barber's-pole which I imagine cannot really have white out of red and red out of white, as it seems to have, or it would be an extended thing, it would occupy space and be material. On the other hand, how can a truly indivisible unit seem to have white out of red and red out of white. A very little thing — a microscopic thing — may seem to be so colored; but it is inconceivable that a mathematical point should be variegated, and it is inconceivable that it should be made to seem so. And how can my mental picture of a horse represent a horse unless in the sense that head corresponds to head, body to body, tail to tail, and legs to legs? The horse I imagine does not represent the one I have seen "indistinguishably"; I can specify the points of resemblance in detail, and they seem unmistakably distinguishable from each other. No real horse ever had it legs more palpably side by side than are the legs of the horse that I am imagining at this moment.

What, then, shall we decide? That they really *are* side by side? The imaginary horse is made to occupy space. That they are *not* side by side, but only seem so? What manner of thing has this imaginary horse become? What are we to conceive the true nature of sensations and ideas to be — not their seeming nature, for that appears to be mere illusion, but their real nature? Such a doctrine as this, if it really were taken seriously, would make psychology an impossible science; but the psychologist does not take it seriously, for he does not hesitate to analyze mental phenomena, to distinguish between the elements which enter into their composition, and, in short, to treat them as though they were by no means the inconceivable entities they are sometimes described as being by psychologist and philosopher, but rather a something more or less plainly revealed in experience and capable of being discussed in a plain and straightforward way.

We are extricated from our dilemma when we keep clearly before our mind the distinction between the subjective and the objective orders of experience. It is perfectly just to say that the picture of a horse in the imagination has part out of part, and that the legs are side by side; to deny this fact is to deny one of the clearest deliverances of consciousness. It is equally just to say that the image is not extended and does not occupy space. The mere fact that we recognize the image as imaginary excludes it from the world of material things.

The reconciliation of the apparent contradiction lies in the perception of the truth that those who, in accordance with the ancient tradition, insist that the image must be denied extension, are denying to it *real extension in real space*, *i.e.* they are simply denying that sensations and ideas, as sensations and ideas, can be *a part of the material system of things.* In this they are wholly in the right. But they fall into error when they are misled into supposing that this forces them to deny the *extensity* of the experience in itself considered, its complexity, its having part out of part in "crude space," subjective space. We have seen that every experience may be assigned a place in the subjective order. It does not cease to be the bit of experience it was before, when it is placed in such a context. It need not lose its character and shrivel to a point. But, as holding its place in the subjective order, as mental phenomenon, it manifestly cannot occupy real space. Its real place, in the only sense in which one can speak of its real place, can be indicated in no other way than by indicating the cerebral disturbance with which the experience is conceived to be connected.

The extensity, the "crude space," of the image is, therefore, one thing, and the real space or place to which the image, as mental phenomenon, may be referred, is quite another. To confuse the two, and to try to thrust the image bodily into the brain, is a natural error. It is little wonder that one who inspects Genie and bottle should deny the possibility of the incarceration of the former in the latter without some vigorous process of preliminary condensation. When one realizes that the creature never was and never will be *in* the bottle, one no longers feels under a moral obligation to shrink him. Crude time and crude space belong to the subjective order; we may dream that years have elapsed, we may imagine that we have travelled over vast stretches; we are not compelled to find room in real time and space for such imaginings. But if we have *really* dreamed that years have elapsed, and have *really* imagined these journeyings, it means that these experiences do not stand alone, but are in some definite relation to the real world, have their *place*, in one sense of the word, if not in another.

Perhaps the reader will object that I have not definitely explained what is meant by this "place." I have in this and in the preceding chapter spoken of mental phenomena as referred to or connected with the body, but I have in no case described the nature

of the connection. Can this not be made plain? If it cannot, are we not employing a meaningless term, one which merely serves to conceal our ignorance?

To this I answer: We have no right to ask that the relation of mind and body be *explained*, in the usual sense of the term. We have seen that the interactionist, in striving to make it comprehensible, has turned mind into a material thing, and has assimilated the relation to other relations with which we are familiar, thus putting it into a class, and relieving us of the sense of strangeness which has oppressed us when we have contemplated it. We have seen also that the parallelist, although he has detected the error of the interactionist, has made use of a material analogy in his figure of mind and matter as parallels, and has unhappily taken another material analogy seriously when he has attempted to explain how it is that mental phenomena and material phenomena are concomitant. He has assimilated the relation to that of different qualities referred to one substance.[1] In each case, the relation has been *explained* by putting it in the same class with certain other relations.

But it has, I hope, been made clear that all such material analogies are vain. The relation of mind and body is unique, and one gains nothing by denying its uniqueness. That there is a distinction between the subjective order and the objective is too plain to be denied. That the two orders are not independent of each other, but form one system, must be admitted by every one, explicitly or implicitly. The plain man loosely connects his mind and his body. These words have no occult significance ; they sum up in a sentence all those experiences to which reference has been made above, *i.e.* the fact that when his eyes are open he sees things, and that when they are closed he does not ; the fact that when his ears are open he hears sounds, and that when they are stopped he does not, etc. The psychologist relates mind and body somewhat more definitely. Here, again, nothing more is meant than that just such facts as these are observed and recorded in a more painstaking way, and the *parts* of the body concerned in the experiences are more carefully determined. The whole body of facts thus collected is conveniently symbolized under the figure of parallelism, and men talk of a point-for-point correspondence, which they are very willing to admit they are not in a position to prove. But suppose

[1] See Chapter XX.

that the limitations of our knowledge in this direction were done away. Suppose that the point-for-point correspondence could be proved in completest detail. What would this mean? It would only mean that very many such facts as those above referred to were accurately known. Our knowledge would not differ in kind, but in degree, from that we now possess. Indeed, it seems inconceivable that the utmost extension of our knowledge both of matter and of mind should *explain* the relation of mind and matter as it seems to many desirable that it should be explained.

This by no means implies a defect in our knowledge. It does not mean that we are and must remain ignorant. If a class of facts is really unique, no one is to be pitied for his inability to find a broader class under which he may subsume it, and of which he may declare it a species. A man may cry: Mystery! if he looks in vain for something in a place in which it is conceivable that something should be found; but he has no right to call it a mystery that he can discover nothing in a vacuum, or that he finds himself unable to assign a location to all space.

We have seen [1] that the word "explanation" has its legitimate sphere of application, as have other words. In the present case, the demand for an explanation appears to arise out of the fact that mental phenomena are more or less vaguely materialized. If we conceive them to be material, it is not out of place to ask for an explanation of their relations to the body. In giving an explanation we may try to show definitely with just what class of material relations we are concerned, or we may admit our ignorance and wait for more light. The problem becomes of the same general nature as that of the relation of the moon to the earth. But when it is realized that mental phenomena must not be materialized, the case becomes very different. It is seen that the demand for an explanation has arisen out of a misconception.

But if the relation of mind and body is so peculiar that I must give up all attempt to explain what it is, am I not, in speaking of a "reference to the body," a "relation to the body," a "connection with the body," employing empty phrases which must remain without definite significance to myself and to others? Not at all. I may point out in detail the facts of experience which are gathered up and generalized in such expressions. I may call attention to the difference between the subjective order and the objective, and

[1] Chapter XV.

indicate the errors into which men may fall when they confuse the two. I may do everything save obliterate the distinction between mental and material, by subsuming the former under the latter or the latter under the former. In a true sense of the words, I may explain what I mean by the expressions I use, and may even induce men to see the reasonableness of my doctrine.

To hold clearly in mind all those experiences which together furnish us with the distinction of mind and world is clearly impossible. Some sort of a symbol, some *schema*, is a necessity, and such a *schema* is offered us by the parallelist. To quarrel with what he offers us, because his figure may be misconceived and often has been misconceived, is not worth while. The thing to do is to use it, and to avoid being misled by it. The totality of the mental phenomena we commonly refer to a single organized body, we recognize as a mind, or a consciousness. Whether more than one consciousness may be referred to one body, and what may be meant by such a reference, are questions which will have to be discussed later. Meanwhile, I shall merely remark that *a consciousness* is evidently not the same thing as *consciousness*, in the broad sense in which the word has been used in many of the preceding chapters.

CHAPTER XXV

OF NATURAL REALISM, HYPOTHETICAL REALISM, IDEALISM AND MATERIALISM

THE man who has thought out a philosophical doctrine which seems to him wholly new and quite different from those which have been advocated by his predecessors may well ask himself anxiously whether it would not be well for him to keep his discovery to himself. The probability that all others have been sitting in total darkness, and that to him alone a light has been revealed, is too small to be seriously taken into consideration.

But he who has followed with patience the reflections of the minds which have adorned the divers schools of philosophic thought, may, if he has learned to resist the youthful impulse toward indiscriminate admiration and sweeping condemnation, hope to learn something from the successes and from the failures of all. He may see that this one has recognized one undoubted truth, and has, perhaps, by that very fact been led to do scant justice to another. He may see that that one has thereby been stirred up to protest, and has been betrayed by his zeal into the converse error. If he can devise some doctrine that seems to give recognition to the truth which has been perhaps unduly emphasized by each school, and can thus bring about something like a reconciliation of the different forms of opinion, it does not seem unreasonable for him to set it forth. He appears to find a relative justification for each, and, as he acknowledges his indebtedness to each, he makes no preposterous claim to an abnormal originality, and does not have to pose as a creator out of nothing of philosophical doctrine.

For the doctrine of the world and the mind set forth in the preceding chapters I am inclined to claim attention largely because it is neither very new, in its elements at least, nor very startling. As we have seen, it is quite in harmony with truths which have long been recognized by the psychologist. It merely invites him

to come, by a process of reflection, to a clearer comprehension of their full significance, and thus to escape from certain dangers which menace him. In the present chapter I wish to point out that it does full justice to the impulse which leads men to declare themselves adherents of one or another of certain leading schools of philosophy, and makes it quite comprehensible that such schools should have arisen. I shall begin with the doctrine of the Natural Realists.

The man of whom we most naturally think when we employ this term is Thomas Reid. The term is, to be sure, a "question-begging" epithet, and may be misleading, for, although it is natural for a man like Reid — a man gifted with robust common sense but not born for metaphysical analysis — to think, under some circumstances, as Reid did; yet it is equally natural for an acuter mind to repudiate this philosophy and embrace another. To Reid himself his doctrine was the philosophy of Common Sense, and his appeal is everywhere from the perverted ingenuity of the philosopher to the robust judgment of the plain man. It is eminently natural to be a plain man before one has learned to be something better, and the mass of mankind have always been, from the point of view of the metaphysician, plain men. There is no serious objection to applying the title Natural Realism to the doctrine of the "natural man," but one must bear in mind that the individual thus indicated is not thereby made the subject of unqualified praise.

At one time Reid regarded himself as the disciple of Berkeley, the idealist. But the consequences that David Hume seemed logically to deduce from the principles laid down by his predecessor aroused in Reid a lively discontent. A general scepticism by no means suited the temper of his mind; he was unwilling to regard human knowledge as limited wholly to "impressions" and "ideas," and he cast about for some means of egress from the unsubstantial prison which shut him in. An external world he must have, and a soul not to be confounded with a "bundle of perceptions." The door which he sought for he found in the discovery that his predecessors, Descartes, Malebranche, Locke, Berkeley, and Hume, all based their reasonings upon an erroneous hypothesis, the hypothesis "that nothing is perceived but what is in the mind which perceives it." Once grant this hypothesis, and all is lost: "Bishop Berkeley hath proved, beyond the possibility

of reply, that we cannot by reasoning infer the existence of matter from our sensations; and the author of the 'Treatise of Human Nature' hath proved no less clearly, that we cannot by reasoning infer the existence of our own or other minds from our sensations."[1]

The world and the mind, then, must be saved by a return to common sense. The plain man knows very well that he not only perceives sensations but perceives *things*. He knows that, in order to perceive things, he must have sensations, but he does not confound the two, and realizes that they are quite unlike. The distinction between the two may be made clear by a little reflection, and it may also be made clear that our knowledge of the world is not the result of a process of inference: —

"The notion of extension is so familiar to us from infancy, and so constantly obtruded by everything we see and feel, that we are apt to think it obvious how it comes into the mind; but upon a narrower examination we shall find it utterly inexplicable. It is true we have feelings of touch, which every moment present extension to the mind; but how they come to do so is the question; for those feelings do no more resemble extension than they resemble justice or courage — nor can the existence of extended things be inferred from those feelings by any rules of reasoning; so that the feelings we have by touch can neither explain how we get the notion, nor how we come by the belief of extended things.

"What hath imposed upon philosophers in this matter is, that the feelings of touch, which suggest primary qualities, have no names, nor are they ever reflected upon. They pass through the mind instantaneously, and serve only to introduce the notion and belief of external things, which, by our constitution, are connected with them. They are natural signs, and the mind immediately passes to the thing signified, without making the least reflection upon the sign, or observing that there was any such thing. Hence it hath always been taken for granted that the ideas of extension, figure, and motion are ideas of sensation, which enter into the mind by the sense of touch, in the same manner as the sensations of sound and smell do by the ear and nose. The sensations of touch are so connected, by our constitution, with the notions of extension, figure, and motion, that philosophers have mistaken the one for the other, and never have been able to discern that they were not only distinct things, but altogether unlike. However, if we will reason

[1] "An Inquiry into the Human Mind," Chapter V, § 7.

distinctly upon this subject, we ought to give names to those feelings of touch; we must accustom ourselves to attend to them, and to reflect upon them, that we may be able to disjoin them from, and to compare them with, the qualities signified or suggested by them.

"The habit of doing this is not to be attained without pains and practice; and till a man hath acquired this habit, it will be impossible for him to think distinctly, or to judge right, upon this subject.

"Let a man press his hand against the table — *he feels it hard.* But what is the meaning of this? — The meaning undoubtedly is, that he hath a certain feeling of touch, from which he concludes, without any reasoning, or comparing ideas, that there is something external really existing, whose parts stick so firmly together that they cannot be displaced without considerable force.

"There is here a feeling, and a conclusion drawn from it, or some way suggested by it. In order to compare these, we must view them separately, and then consider by what tie they are connected, and wherein they resemble one another. The hardness of the table is the conclusion, the feeling is the medium by which we are led to that conclusion. Let a man attend distinctly to this medium, and to the conclusion, and he will perceive them to be as unlike as any two things in nature. The one is a sensation of the mind, which can have no existence but in a sentient being; nor can it exist one moment longer than it is felt; the other is in the table, and we conclude, without any difficulty, that it was in the table before it was felt, and continues after the feeling is over. The one implies no kind of extension, nor parts, nor cohesion; the other implies all these. Both, indeed, admit of degrees, and the feeling, beyond a certain degree, is a species of pain; but adamantine hardness does not imply the least pain.

"And as the feeling hath no similitude to hardness, so neither can our reason perceive the least tie or connection between them; nor will the logician ever be able to show a reason why we should conclude hardness from this feeling, rather than softness, or any other quality whatsoever. But, in reality, all mankind are led by their constitution to conclude hardness from this feeling."[1]

I have taken this long extract from Reid because it admirably illustrates both the strength and weakness of the appeal to common sense. I might almost as well have chosen any one from a

[1] "Inquiry," Chapter V, § 5.

multitude of others, for Reid is consistently inconsistent, and hugs the shore rather closely. But the passage I have taken is at least as good as any, and presents a curious combination of truth and error.

As for the truths which it recognizes: we notice, in the first place, that it does not overlook the fact that extension is *presented to the mind* in feelings of touch. In the preceding pages I have tried to make clear what must be meant by all such statements as this. They may be misunderstood, but they undoubtedly contain an important truth.

Again, too much emphasis cannot be laid upon the fact that the feelings of touch "pass through the mind instantaneously, and serve only to introduce the notion and belief of external things." This is a recognition of the truth that our experiences seem to fall most naturally into the objective order, when they are of such a kind that they may take their place in the objective order; and a recognition also of the truth that the phenomena of the objective order stand out before the attention in a peculiarly vivid way. It is not easy to represent clearly to the mind what we mean by sensations, as sensations. Just for this reason have psychologist and philosopher been misled into talking about mental phenomena in the incoherent fashion with which we are all familiar. Had Reid recognized this truth even more clearly he might have hesitated to speak of sensations in the dogmatic way that is characteristic of him. It does not in the least follow that, because a man has sensations, he is able to describe them accurately, or even to avoid saying about them what a careful analysis shows to be not merely untrue, but even highly absurd.

In the third place, we find some justice done to the statement that, when a man presses his hand against the table, *he feels it hard*. Reid's plea is for a recognition of the immediacy of this knowledge. When I press my hand against the table, I know it to be hard "without any reasoning, or comparing ideas." No man, who comes back to the experience which stirred Reid to protest, can avoid a certain sympathy with his words. Here I sit before my desk; I see it; I feel it. The desk seems to be known, and immediately known, in such experiences. I perceive the desk to be extended, to be hard. Am I to be told that what I perceive is not a desk at all, but, so to speak, a miniature copy? Am I to believe that it is not where it seems to be, out in front of

my body in space, but is, instead, perhaps in my brain, perhaps nowhere in particular? Am I to weakly assent to the preposterous statement that what I seem to perceive as extended is not really extended, that what I seem to perceive as hard is not really hard? Clear your mind of the imaginings of the philosophers, exercise ordinary common sense, look at this desk and lay your hand on it. You are conscious of sensations, of course, but are you ever really tempted to confound them with the desk? Do you not *feel now*, at this moment, that *this* desk is hard and extended — not an uncertain and hypothetical desk whose existence is inferred from the presence of this one — but *this very desk?*

In the doctrine which I have presented in this volume full justice is done to Reid's insistence that our knowledge of things and their qualities is not a mere knowledge of images and copies, but really a knowledge of the things themselves. Indeed, as we shall see a little later, Reid's intention was better than his execution, and he might profitably have gone a little farther than he did. But what he meant to do is sufficiently plain, notwithstanding his inconsistencies of expression; he meant to insist that we do not first know sensations and then infer the existence of things and their qualities from these sensations. He meant to deny the doctrine of representative perception. In this he was justified.

In the preceding chapters I have dwelt at length upon the truth that the man who once consistently shuts himself up in the charmed circle of "impressions" and "ideas" can never logically issue from that circle. A world truly external can never be known to him; and as there is to him no "external" there can be no contrasted "internal." In other words, impressions and ideas can only be impressions and ideas to a man who recognizes a real world with which they stand contrasted. There can be no subjective without an objective. It is because men are inconsistent that they seem able to keep such distinctions when they have really obliterated them. It is of the utmost importance to recognize that the objective order of experience is as immediately known as the subjective order. This desk as "thing" is not known as the result of an inference from a group of sensations, for the sensations are only known, as sensations, when they are contrasted with a world of things. The Natural

Realist is, then, entirely in the right, when he insists that we must not regard the sensations as known immediately and the real things to which we refer them as known at one remove.

In the fourth place, we should notice, that Reid distinguishes, as he should, between sensations and the qualities of external things. We have seen that they are not to be confounded. Experiences recognized as having their place in the subjective order are sensations, and recognized as having their place in the objective order are the qualities of things. They are not to be treated alike; a truth which Reid recognizes in the statement that they differ as widely "as any two things in nature," and in denying to the sensation extension, parts, and cohesion. In this we may cheerfully follow him, merely stopping to point out why it is that we may not ascribe space-relations to mental phenomena in any literal sense of the words. We may yield the same willing assent to his statement that the sensation can exist only so long as it is felt, but that the quality of the table may exist before it is felt, and continue to exist after the feeling is over. This merely means that existence in the objective order is not to be confounded with existence in the subjective, a truth which is more or less clearly recognized by every one who has arrived at the distinction between sensations and things.

It is evident from the foregoing that Reid had laid hold of a good many of the distinctions which have been discussed in the preceding chapters. This is scarcely surprising, for those distinctions are implicit in the thought of the natural man, and are recognized in a way even by common sense. But common sense is a poor staff to lean upon in the long journey which has to be made by the metaphysician. It is impossible to read the extract which we have been discussing without discovering that Reid's thought was far from clear and far from consistent. He vigorously opposed the doctrine of representative perception, yet the doctrine with which he would replace it seems so curiously like it, that it is possible for his sympathetic editor, Sir William Hamilton, to maintain that he was not a Natural Realist at all. It seems, however, more just to allow him the title, for his very inconsistency gives him a peculiar right to stand as the representative of the natural man, who is repelled by the doctrine of representative perception as it has been worked out with offensive completeness by the philosopher, and who insists that he

really knows external things, but can give no very articulate account of what he means by his statement.

We have heard Reid tell us that feelings of touch at every moment "present extension to the mind," but before he has finished his paragraph we discover that it is not really extension that is presented to the mind but the *notion* of extension, and the *belief* that there exist extended things. This is reiterated in the following paragraph, where we are told that the feelings of touch "serve only to introduce the notion and belief of external things, which, by our constitution, are connected with them." The "*ideas* of extension, figure, and motion" are expressly recognized, and Reid's only concern appears to be to insist that these ideas or notions are not to be confounded with the sensations of touch, and are to be recognized as quite unlike them.

At once we are impelled to ask: Are these ideas or notions of extension, figure, and motion to be regarded as external? are they identical with the extensions, figures, and motions of the external world? The question finds its answer in the mere fact that the words "idea" and "notion" are used at all. The hardness of the table pressed against is surely neither "idea," "notion" nor "belief." These terms Reid would himself have been willing to recognize as standing for something "which can have no existence, save in a sentient being."

We appear, then, to have to do, not merely with sensations and external qualities, but with sensations, ideas, or notions of external qualities, and external qualities themselves. That in passing from sensations to the notion and belief one makes a transition, Reid admits when he distinguishes them as sign and thing signified; but he appears quite to overlook the fact that in passing from the notion and belief to the external thing he is making still another transition. He simply ignores the distinction emphasized by the advocate of the doctrine of representative perception. It is not that he has bridged the gulf between thoughts and things, or in any way indicated what may be meant by a knowledge of things. He has simply assumed that in having the notion and belief *he has the thing*, and he throws the *onus probandi* upon his "constitution."

But, notwithstanding Reid's anxiety to arrive at external things "without any reasoning, or comparing ideas," he has an uneasy consciousness that his knowledge of things is not immediate. He

cannot wholly overlook the fact, recognized clearly enough by the plain man, that he would not know things if he had no sensations. The sensation seems to him to be a starting-point, the thing to be a terminus. He *concludes* that there is something external; the *conclusion* is drawn from the feeling "or in some way *suggested* by it"; the feeling is the *medium* by which we are led to the *conclusion*. It is true that the existence of external things cannot be *inferred* from the feelings of touch "by any rules of reasoning," but men are impelled to make just such *inferences* by their nature or constitution, and are under no obligation to justify them by reasoning.[1]

It is unnecessary to heap together a multitude of such expressions as these. They are scattered all over Reid's pages, and they abundantly prove that he did not completely confound the idea or notion of extension with extension itself. It does not sound nonsensical to state that the existence of extended things cannot be inferred from feelings of touch — to many men it has seemed that the existence of such things is a legitimate subject of doubt. But it seems quite gratuitous to discuss whether the existence of the *idea* of extension may be inferred from sensations. Neither Descartes, nor Locke, nor Hume, nor any one else whom Reid was anxious to refute, ever dreamt of denying such an existence. What Reid wanted to establish was the existence of external things, not the existence of the ideas of such or of beliefs in such. It is everywhere evident in his pages that, although he slurs over the distinction between ideas and things, he does not completely discard it, and also that he finds in ideas, indorsed by our "constitution," a guarantee of the existence of things, an existence which is thus admitted not to be known immediately. There is really very little difference between the Cartesian doctrine that the existence of an external world is only assured to us by the fact that a good God would not deceive us, and the doctrine of Reid, which finds the guarantee in our constitution. In either case one is taking the word of another for what is not self-evident.

It is peculiarly interesting to note how a man who has begun with an energetic protest against the doctrine of representative perception has a tendency to slip into some form of that doctrine when he attempts to define and defend his own. This is precisely

[1] "Inquiry," Chapter II, § 7.

what we might expect. The natural man believes that he perceives things, it is true, but he also recognizes that he has ideas, and believes that his ideas in some way represent things. How easy it is for him to be led to emphasize this aspect of his beliefs becomes evident when we see him fall into the hands of the psychologist. He experiences no shock when he is informed that a mind can know no more of the external world than is contained in the messages conducted to the brain along the sensory nerves. It is only when the consequences of such a doctrine are rigorously deduced and exhibited to him, and when he feels himself in danger of losing an external world altogether, that his mind revolts. Reid is with him, heart and soul. We must not deny that he is a Natural Realist because he arrives at an external world by inference. That is but one aspect of his doctrine. Natural Realism contains all sorts of truths and all sorts of errors. It is not, properly speaking, a philosophy, but rather the raw material out of which a philosophy must be made. It is the position of the plain man — the position from which we must all set out when we enter upon the path of reflection; unless, indeed, we adopt some ready-made philosophy, and prefer riding on another man's back to exercising our own legs. And even then we can scarcely avoid putting a foot to the ground from time to time.

But though Natural Realism may serve its purpose as a point of departure, it is no place to take up one's lodging. One does not go to the station to sit indefinitely upon its benches. It is melancholy to think with what high purposes Thomas Reid set himself to work, and how little he has done to throw light on any of those dark places which we are all anxious to see illumined. Let the following passage stand as a warning to those who lounge at the station:—

"Perception, as we here understand it, hath always an object distinct from the act by which it is perceived; an object which may exist whether it be perceived or not. I perceive a tree that grows before my window; there is here an object which is perceived, and an act of the mind by which it is perceived; and these two are not only distinguishable, but they are extremely unlike in their natures. The object is made up of a trunk, branches, and leaves; but the act of the mind by which it is perceived hath neither trunk, branches, nor leaves. I am conscious of this act of my mind, and I can reflect upon it; but it is too simple to admit of

an analysis, and I cannot find proper words to describe it. I find nothing that resembles it so much as the remembrance of the tree, or the imagination of it. Yet both these differ essentially from perception; they differ likewise one from another. It is in vain that a philosopher assures me, that the imagination of the tree, the remembrance of it, and the perception of it, are all one, and differ only in degree of vivacity. I know the contrary; for I am as well acquainted with all the three as I am with the apartments of my own house. I know this also, that the perception of an object implies both a conception of its form and a belief of its present existence. I know, moreover, that this belief is not the effect of argumentation and reasoning; it is the immediate effect of my constitution." [1]

In this passage Reid makes a distinction, as he should, between percept and thing. But is it possible to leave the nature of the percept, and the nature of its relation to the thing, more absolutely obscure than Reid has left them? The tree has trunk, branches, and leaves; the percept has not. The percept does not resemble the tree, but it does resemble the remembrance of the tree, or the imagination of the tree. But do not trees pictured in the imagination appear to have trunk, branches, and leaves? and is not the *tree perceived* — not the one *suggested*, *inferred*, or *believed in* — is not *this tree* as composite as it seems to be? Alas! these things cannot be as they seem, for they are "acts of the mind," too simple to admit of analysis; and we must not attempt to describe them, but must confine ourselves to denying that they in any way resemble external things.

It is clear that anything like a science of psychology is impossible where mental phenomena are consistently treated as unanalyzable and indescribable. As a matter of fact, the science of psychology has deliberately set aside Reid's doctrine, and has furnished an analysis of the percept, finding it composite, distinguishing its elements, referring this to the sense and that to the imagination. It has made it quite comprehensible that the percept of a tree should represent a tree and not represent "justice or courage." And when the psychologist recognizes that a given experience, in order to be classed as subjective, must be denied real extension and a position in real space, but must not on that account be robbed of its own nature as revealed in consciousness,

[1] "Inquiry," Chapter VI, § 20.

then he is even justified in saying that the percept of a tree resembles a real tree as it does not resemble justice or courage.

In one respect Reid's doctrine seems to leave the whole problem of perception even more obscure than it is to the mind of the plain man when he is let alone by the philosopher. To genuine common sense it does not seem wholly incomprehensible that ideas should represent things, for, after all, ideas seem to have some resemblance to things. The house that is imagined is not an external thing, but it certainly seems to have roof and walls, windows and doors, and in all these respects to be like a real house — at least something like a real house. But with Reid the denial of resemblance is complete, and it becomes inconceivable that such a thing as the percept should even "suggest" a house.

If it remains obscure to the plain man what is meant, in general, by the statement that ideas represent things, the obscurity is certainly not relieved by giving such an account of ideas that it becomes inconceivable that any particular idea should represent any particular thing better than any other. Under such circumstances it becomes quite hopeless to attempt to make anything clear; one is reduced to sheer dogmatism, to mere asseveration: "I know this also, that the perception of an object implies both a conception of its form and a belief of its present existence." What is this perception like? How is one to think of it? It cannot be described. What does it mean to say that it *resembles* imagination? The statement cannot be made clearer, it can only be repeated. What does it signify to say that the perception *implies* this or that? No answer is forthcoming. What is the *conception of the form* of the object? Has it itself any form? Is it extended? Or is it an unanalyzable and part-less thing like the percept? Does it "imply" the object as the percept appears to "imply" *it?* And what is meant by *belief?* When are beliefs reasonable, and when unreasonable? Finally, is it possible to point out at all clearly what is meant by the words *present existence?*

To none of these questions does "our constitution" even make a pretence of furnishing an answer. It appears to be its function to lead us to string together into sentences words which have to us no definite meaning, and to defend stubbornly the sentences thus constructed against all the assaults of reflection.

It is clear that it was not necessary for Reid to take refuge in mere dogmatism. He might have defended the external world

intelligently, by undertaking a careful analysis of experience, and by pointing out the real difference between sensations and things. That he was justified in making a protest, and the particular nature of the misconceptions into which he was betrayed, seem to be revealed with some clearness in the light of the doctrine which has been advocated in the preceding chapters. We see that we cannot wholly condemn Reid, and we also see that we cannot frankly justify him.

On the other hand, we must admit a relative justification also to those whose position he so vigorously opposed. We have seen how Reid tended to slip unconsciously into the form of doctrine which was the object of his attack. This is condemned by his editor, Sir William Hamilton, as a weakness unworthy of him, and it is insisted that we must hold to a Natural Realism of a purer type. Yet the careful reader of Sir William's works discovers that the doctrine actually held by the latter is, after all, a doctrine of representative perception. Existence "as it is in itself" is carefully distinguished from existence "as it is revealed to us"; man is a creature that inspects, not things, but the pictures of things — *rerumque ignarus, imagine gaudet.*[1] It is wonderfully easy to adopt this doctrine, as innumerable psychologists and psychologies bear witness. To condemn it as mere error is unwise, for, as we have seen, it is at bottom a recognition of the undoubted truth that every element of experience may take its place in the subjective order.

I need not here dwell upon the position of the psychologist, for that has been done sufficiently already. It is a dual position, and while it insists upon giving to the subjective order its rights, it saves itself by tacitly recognizing, as Reid tried explicitly to recognize, the fact that we have an experience of *things*. It is only the philosopher, who emphasizes one of the aspects of truth recognized by the plain man at the expense of another, who is driven to strange devices to secure a dubious right to believe in a shadowy external world.

And it is interesting to note that even the philosopher cannot wholly put off humanity, and must involuntarily take his place from time to time beside Reid. "I have often remarked, in many instances," writes Descartes, "that there is a great difference between an object and its idea."[2] Strange that he should have

[1] "Lectures on Metaphysics," VIII.

[2] Méditation Troisième.

remarked this, when he has all his life perceived nothing but ideas! "Thus I see, whilst I write this," says Locke, "I can change the appearance of the paper, and by designing the letters tell beforehand what new idea it shall exhibit the very next moment, by barely drawing my pen over it, which will neither appear (let me fancy as much as I will), if my hands stand still, or though I move my pen, if my eyes be shut; nor, when those characters are once made on the paper, can I choose afterward but see them as they are: that is, have the ideas of such letters as I have made. Whence it is manifest, that they are not barely the sport and play of my own imagination, when I find that the characters that were made at the pleasure of my own thought do not obey them; nor yet cease to be, whenever I shall fancy it; but continue to affect the senses constantly and regularly, according to the figures I made them."[1]

These sentences might have been penned by Reid. They are an unconscious tribute to the doctrine, implicit in common thought, that our knowledge of an external world is as direct and immediate as our knowledge of an internal. So I feel myself justified in claiming both Descartes and Locke, as well as Reid, to be witnesses to the truth of the theory which I advocate. I can do this with the better conscience, as I have no objection to their holding still to their doctrine of representative perception — in a modified form, *i.e.* in such a form as not to make it incredible that any one should ever arrive at the notion of an external world at all.

As for the Idealist, it is clear that he is in the same toils as the Hypothetical Realist. He marks the fact that every experience can take its place in the subjective order, and he dubs every experience "idea." But he is sufficiently clear-minded to see that, if we shut the mind up absolutely to its ideas, it cannot possibly know its ideas to be representative of things. If we allow Berkeley to describe the "objects of human knowledge" as he does in the first section of his "Principles" — if we recognize under that head nothing else than ideas of sense, ideas of memory and imagination, the passions and operations of the mind, and the self that perceives them — we must admit that his battle is won at the outset, for it is useless to attempt to know what cannot by any possibility become an object of human knowledge. No *thing* is given directly, and no *thing* can be logically inferred from what is

[1] "Essay," Book IV, Chapter XI, § 7.

given directly. We must grant to Berkeley the credit of seeing more clearly than did Descartes and Locke the truth that no process of adding and subtracting ideas can result in a something that is not a complex of ideas. By manipulating numbers we can get numbers, but we cannot get something of a wholly different nature. *It is useless to endeavor to manufacture an objective order out of phenomena which belong admittedly to the subjective order.* This is what Berkeley dŏes when he turns ideas of a certain vivid and orderly nature into "real things." His "real things," in so far as they are ideas, are percepts, and remain subjective. It is quite proper to distinguish in the subjective order between sensation and imagination, between percept and sensory image; every psychologist recognizes such distinctions. But it is not prope , having made the distinction, to call certain of the phenomena of the subjective order "real things" and force them to play the rôle of an external world.

Hence, if we must credit Berkeley with a clearer insight than Descartes and Locke, we must also admit that he was more lacking in common sense. That is to say, that vague recognition of the fact that there is an external world, that it is not a something groped for as a result of an inference from ideas, and that it is as directly known as are ideas themselves — that vague recognition of a truth, which the plain man can champion but cannot defend, was present to the minds of Descartes and Locke, and led them to wheel around with shameless inconsistency when it became evident that their path led to a desert. Berkeley continued his journey in spite of the protest of common sense. He hardly seems to have heard its still small voice, which is, it must be admitted, a muffled voice, and scarcely articulate. And yet may we not assume that he heard it faintly after all, since he was moved to plant his desert with percepts and to call them trees?

Upon the impossibility of getting along without an external world — a real external world, and not a sham "projection" — I have dwelt in another chapter.[1] But he who finds it inconceivable that a man should attempt to do it, either was not born to be a metaphysician, or is new to the trade. Idealism is the weakness of acute minds, not of dull ones. It means that a certain truth has been grasped, and firmly grasped, but that another has been overlooked.

[1] Chapter XXII.

The truth which the Idealist fails to recognize is much emphasized by the Materialist. A realm of minds without a physical basis seems to him a floating wreath of mist, a chaos of impalpable unrealities. I hope it has been made clear in the preceding chapters how much truth lies hid in his contention. Without the objective order, without the real world in space and time, there would be no *world* at all, in any proper sense of the word, no universe of things and minds, no system, no experience. When we quarrel with the Materialist, we must not utterly repudiate all he says, for he speaks truth sometimes, and not error.

CHAPTER XXVI

THE WORLD AS UNPERCEIVED, AND THE "UNKNOWABLE"

In Chapter XXIII I have touched upon the topic upon which I propose to speak in this chapter, and it is possible that I have there said enough to bring my thought clearly before the acute reader who is accustomed to such analyses as I have attempted to make. It is, however, scarcely possible to be too explicit, when one is dealing with ideas so elusive, and ideas which different men appear to see in very different lights. I shall, accordingly, come back again to the distinction between the mind and the world, and shall try to render it more unmistakable by answering a question, which arises in many minds, and to which many men seem to find it difficult to give a satisfactory answer.

We have seen that we must accept the fact that we perceive a real external world. It will not do to regard this world as a complex of sensations, an idea, or a "projection." The external world must really be *external*, that is to say, it must carefully be distinguished from the contents of any mind. Certainly it is thus that science, as science, treats it. The geologist, for example, has no hesitation in placing before us a picture of the earth as it was before it was in a condition to be the seat of life, and in describing the successive stages by which it has come to be what it is. He is ready to admit that his account may be more or less inaccurate; that the limitations of his knowledge cause him to walk upon rather uncertain ground. But, such as it is, he believes his account to be a description of the world as it was in ages past. He does not suppose for a moment that he is busying himself with the sensations or ideas of any creature past or present. He recognizes, of course, that at certain earlier periods of the world's history there existed brutes to whom we must attribute a psychic life of some sort, and that there now exist men who may have a highly complex mental life. But it seems to him absurd to maintain that the series of physical changes which have taken place upon this planet is to be

identified with the mental experience of any brute or any man. Let the psychologist concern himself with sensations and ideas; *he* will tell us something about the external world.

Thus, he gives us an account of the condition of things before the appearance of life upon the earth, and he expects us to accept his statements as true or partly true, or, at least, more probably true than some other statement that might be made upon the subject. He adduces his facts, and points out the grounds for his conclusions. He does not appear to be speaking at random. So long as we remain within the limits of his science, we can make no general objection to his attempt to enlighten us.

But if we are at all given to metaphysical reflection, there appears to rise up before us what, at first sight, seems to be a very serious objection, not merely to the particular description which he has seen fit to give, but to every description which it is possible for him to give. We realize with a start that he is bringing before us the world *as we might have perceived it, could we have been present at the time of which he is speaking.*

Now, we have seen that there is no element in the objective order of experience which *may* not be referred to the subjective order; that is to say, which may not be shown to bear a significant relation to our sense-organs and our nervous system. Certain elements of our experience are, when referred to the subjective order, called touch-movement sensations; these elements, referred to the objective order, appear to be the very stuff of which the external world is made. But could any creature perceive an external world made of such stuff, if he were himself so constituted that he could have no touch-movement sensations? Can we not conceive of an external world revealed to some other creature in experiences of some other sort? Indeed, must we not assume that any external world upon which any creature can gaze must be, in a sense, a function of that creature itself? A truth which the psychologist expresses in his own way in maintaining that we can know no more of the external world than is revealed to us through our sensations.

The world, then, as we conceive it to have existed at the remote period of which we are speaking, is such a world as may be perceived by man, a being with given sense-organs and a given nervous system. At the date in question no such being existed; there were no sense-organs and there was no nervous system of

any sort. Could there, under these circumstances, have been in existence such a world as we are asked to believe in? The very elements of which it is composed appear to be dependent upon conditions which are, by hypothesis, absent. The difficulty seems to be a desperate one, for we lose, apparently, not only this particular external world appropriate to man, but everything that can bear the remotest analogy to it. Where there are no senses whatever and no nervous system of any sort, there cannot be sensations of any kind; and we know absolutely nothing of an external world which is composed of elements incapable of being regarded in the light of sensations.

Can we, then, say that, before the advent of life, the earth really existed under the form pictured to us by the geologist? Can we say that it existed under *any* form?

If we turn from the consideration of the past existence of the external world to that of its present existence, we find ourselves confronted by much the same problem. The world as it now presents itself to me is composed of *sensation-stuff*, that is to say, of elements which, regarded from another point of view, must be given the name of sensations. I must recognize the fact that, were my bodily constitution different, the world upon which I gaze would be a more or less different world. It is because I am what I am that I perceive this table before me to be what it is. A series of beings differing more and more widely from me would perceive a series of tables (may I be permitted the use of the word?) differing more and more widely from this one. What if the difference goes beyond a difference in degree? What if senses and nervous system disappear altogether? Must not *the table* disappear too? Can a table unperceived by any one exist under any form whatever? And if it cannot exist under any form, can it mean anything whatever to say that it exists?

We are brought around, thus, to an old difficulty. We have seen that a world really external, a world not to be confounded with the perceptions in any mind, is an absolute necessity, if there is to be a scheme of things, an experience, at all. If there is no external world there are no sensations, no perceptions, no minds, for the distinctions which give these words their significance are lost. And if the external world is really something *distinct from* the perceptions of all possible minds, it is absurd to say that it has no existence except *in* the perceptions of such minds.

It exists in space and time, it has a past, a present, a future; it exists continuously; and the perceptions of minds are evanescent flashes, which come into being at this or that moment of time, and which straightway disappear. And yet, when we ask: What is this external world which is not to be confounded with the perceptions of any mind? can we give any account of it? we seem to find nothing in our hands save perceptions — the world as it presents itself to this mind or to that — and we are tempted to talk of "projections."

As the reader will see, we have before us the distinction between *the world as it is* and *the world as it seems to us*. This distinction impresses one as reasonable; and yet, when one faces the difficulty of making clear what one means by the world *as it is* one is puzzled to know how to justify it.

There is a cheap and easy way of extricating oneself from one's difficulties, but it is a poor way. One has only to distinguish between "Reality" and its "Manifestations" and to maintain that we know Reality only *in* or *through* its manifestations, and cannot expect to know it as it is in itself.

We may, thus, say *that* there is a real external world, and when we are asked to explain *what* it is, we may refuse to answer on the ground that the question is an illegitimate one. In maintaining *that* there is such a world, or at least *that* there is an external Reality, we seem to find a door of escape from "the insanities of idealism,"[2] and to attain at least something to which mental phenomena, perceptions, may be related, and thus be saved from the fate of constituting a world of mere phantasms. On the other hand, in holding that this external Reality is unknowable, we free ourselves from the obligation of trying to explain to any one how it must be conceived. It is not to be conceived at all, for all conceiving must be in terms of consciousness; it is not like anything, so we may abandon the attempt to say what it is like. It is enough that it exists, and by its existence saves the world of our experiences from being mere illusion.

I have said that this way of solving the problem brought forward above is a poor one. When we examine it with care we find it so very poor that we cannot but wonder that any thoughtful man who has reflected upon it can regard it as satisfactory.

We see, in the first place, that there is absolutely no founda-

[1] Spencer, "First Principles," Part II, Chapter III, § 46.

tion in our experience for the assumption of the existence of this external Reality, this Unknowable. I beg the reader to recall to mind the true position of the man in the cell.[1] What has he to go upon? What may he assume to exist and what may he not? If he really has experience of appearances, and only of appearances, if it is inconceivable that he should ever have experience of Reality, how can he know an appearance to be such, and to be a something that stands over against Reality as contrasted with it? Can he even *think of* Reality? His thinking is appearance and nothing more. It is impossible for our prisoner to create, by pushing about the furniture in his cell, a something that is not composed of furniture. But I have already discussed this point at such length that it is not necessary for me to dilate upon it here.

In the second place, it should not be forgotten that it is quite impossible to regard this Unknowable as related to our experiences as a whole, as reality is related to appearance within our experience.

The distinction between appearance and reality is a perfectly justifiable one; more than that, it is a very useful one. I have pointed out[2] that the distinction is one which every man is forced to draw at some time or other, and one which the man of science cannot possibly overlook. It sounds odd to no one to say that, although a certain tree looks, at a distance, small and blue, the tree really is large and green; the scholar finds no fault with the statement that, although a given material thing appears to fill space continuously, it really is composed of moving atoms at considerable distances from each other. We are constantly distinguishing between things as they appear and things as they are, and it is not until we fall into the hands of the metaphysician that the fact seems to us worthy of comment.

But, we should surely bear in mind that, when we thus distinguish between appearance and reality, we are simply recognizing a certain relation between given phenomena in our experience. It never occurs to us to connect this or that appearance with this or that reality at random. Each appearance must be connected with its appropriate reality, and we must be able to ascertain what that particular appropriate reality is. The experience which I may call "the tree as seen from a distance" must be connected with

[1] See Chapter II.

[2] Chapters VIII and IX.

the experience which I may call "the tree as seen close at hand"; to connect it, as appearance, with the experience "the horse as seen close at hand," as reality, is nothing less than absurd. As I have pointed out in the chapters referred to just above, our experiences fall into groups; within each of these groups a single experience may stand for any or all of the others; all the experiences in a group are not accorded equal values; certain experiences fall into the subordinate position of signs, and others, in which the mind rests as the most satisfactory representatives of the group as a whole, take the more dignified position of thing signified. The experience which serves as sign is appearance; that to which the mind passes, and in which it rests, is reality.

Thus the words "appearance" and "reality" have a definite connotation which must not be disregarded when the words are used. To be the reality to which any appearance is referred, a thing must fulfil certain definite conditions. It must be an experience belonging to the same group with the appearance; and it must be a peculiarly satisfactory member of that group, a good representative that can give more information than other members touching the group as a whole.

Now, it is clear that an external Reality of the sort which we are discussing, an Unknowable, which cannot have its place in experience at all, is ludicrously unsuited to playing the rôle of the reality to which any appearance may be referred. It cannot be a member of the same group of experiences with any appearance, and of course it cannot be an important member. It can give no information regarding anything. Hence, an external Reality of this sort is evidently not a reality to which one may refer an appearance; it is absurd to speak of its manifestations — they do not belong to *it*, in any intelligible sense whatever. The distinction, then, between the world as it seems to us and the world as it is, if by the world as it is we mean an Unknowable, is something absolutely different from the general distinction we are always making between things as they seem and things as they are. The external Reality is not a reality at all; it is a mere word, a sound, with misleading associations.

How mere a nothing this Unknowable is, is borne in upon one irresistibly when one reflects that its advocate can make no statement regarding it which cannot be shown to be illegitimate. Shall we say it *exists?* Presumably by this we mean that it

exists really, and not merely in the imagination. But our evidence that a thing exists as a real thing and not as a mere figment of the imagination lies in the discovery that it belongs to the objective order of experience. The Unknowable cannot fulfil this condition. Shall we say that it is *external?* What is it that distinguishes things external from things internal? Manifestly, the order to which they belong, their context. The Unknowable belongs to no order; it has no context. Shall we say that we may, at least, call the Unknowable an unknown *Cause?* The relation of cause and effect is a relation of antecedence and consequence in the objective order. The word "cause" becomes a hollow shell when we have abstracted the whole content of the conception of causality, and it addresses itself to the ear, not to the mind.

It seems plain that the man who seeks a way of escape from the "insanities of idealism" will not do well to betake himself to the Unknowable. What he wants is a world which really existed in the remote past; which really exists now when no one perceives it; which will really exist in the future — a world spread out in space and time, to which different minds existing at different times or at the same time may be related, and through which they may be related to each other. If there be such a world, it seems that the universe may be a *Cosmos*, an orderly system of things.

But the Unknowable does not bear the faintest resemblance to such a world, and can serve none of the purposes which such a world may serve. It cannot serve to *order* anything. It is impossible to construct a Cosmos out of the unattached and unrelated groups of mental phenomena allowed us by the idealist *plus* the mere cipher offered us by the advocate of the Unknowable.

Let the reader attempt the construction. Let him carefully purge the conception of the Unknowable of all those glimmerings of meaning with which a careless thinker is apt to sully its virgin purity and degrade it to the level of things knowable. Let him remember that it *has* not existed in the past, *does* not exist in the present, and *will* not exist in the future, for it is above temporal distinctions. Let him remember that it is not and never was *anywhere*, nor were its parts, for it is above spatial distinctions, and a genuine Unknowable must not have parts. Let him remember that it is not *real*, is not *external*, and is not a *cause*, in any sense

of those words with which he is familiar. Finally, let him remember that it is not *present to consciousness*, is not *behind the veil*, and does not *underlie phenomena*, in any intelligible sense of those expressions. Having thoroughly washed it free of all meaning, let him try to use it in the construction of a universe. Can it explain why any man has a given experience at a given time? Can it explain why one man may see the world under a somewhat different guise from that under which another man sees it? Can it even help to make intelligible what is meant by *a given time*, *a given place*, *one man*, *another man?*

I am speaking, of course, of the Unknowable in its purity, of an external Reality which is not external and which is not real. Those who pin their faith to the Unknowable do not, as a matter of fact, wash it as clean as this. I suppose we shall always regard Mr. Spencer as the high-priest of this particular cult; and it is a part of the honor accorded to the most prominent representative of any class that he must bear the brunt of the criticisms brought against the class as a whole. I have no intention of examining in detail his arguments for the Unknowable, but it is well worth while to linger a little in contemplation of the impurities which he has allowed to attach themselves to the conception. It is the presence of these impurities that lends to the Unknowable the fascination which it exercises over many minds; no man can be greatly charmed by a mere vacuum. Mr. Spencer writes:[1] —

"Hence our firm belief in objective reality. When we are taught that a piece of matter, regarded by us as existing externally, cannot be really known, but that we can know only certain impressions produced on us, we are yet, by the relativity of thought, compelled to think of these in relation to a cause — the notion of a real existence which generated these impressions becomes nascent. If it be proved that every notion of a real existence which we can frame is inconsistent with itself — that matter, however conceived by us, cannot be matter as it actually is — our conception, though transfigured, is not destroyed: there remains the sense of reality, dissociated as far as possible from those special forms under which it was before represented in thought. Though Philosophy condemns successively each attempted conception of the Absolute; though in obedience to

[1] "First Principles," Part I, Chapter IV, § 26. I quote only the closing paragraphs of Mr. Spencer's argument.

it we negative, one after another, each idea as it arises, yet, as we cannot expel the entire contents of consciousness, there ever remains behind an element which passes into new shapes. The continual negation of each particular form and limit simply results in the more or less complete abstraction of all forms and limits, and so ends in an indefinite consciousness of the unformed and unlimited.

"And here we come face to face with the ultimate difficulty — how can there possibly be constituted a consciousness of the unformed and unlimited, when, by its very nature, consciousness is possible only under forms and limits? Though not directly withdrawn by the withdrawal of its conditions, must not the raw material of consciousness be withdrawn by implication? Must it not vanish when the conditions of its existence vanish? That there must be a solution of this difficulty is manifest; since even those who would put it do, as already shown, admit that we have some such consciousness; and the solution appears to be that above shadowed forth. Such consciousness is not, and cannot be, constituted by any single mental act, but is the product of many mental acts. In each concept there is an element which persists. It is impossible for this element to be absent from consciousness and for it to be present in consciousness alone: either alternative involves unconsciousness — the one from want of the substance, the other from want of the form. But the persistence of this element under successive conditions *necessitates* a sense of it as distinguished from the conditions and independent of them. The sense of a something that is conditioned in every thought cannot be got rid of because the something cannot be got rid of. How, then, must the sense of this something be constituted? Evidently by combining successive concepts deprived of their limits and conditions. We form this indefinite thought, as we form many of our definite thoughts, by the coalescence of a series of thoughts. Let me illustrate this: A large complex object, having attributes too numerous to be represented at once, is yet tolerably well conceived by the union of several representations, each standing for part of its attributes. On thinking of a piano, there first rises in imagination its outer appearance, to which are instantly added (though by separate mental acts) the ideas of its remote side and of its solid substance. A complete conception, however, involves the strings, the hammers,

the dampers, the pedals; and while successively adding these, the attributes first thought of lapse partially or wholly out of consciousness. Nevertheless, the whole group constitutes a representation of the piano. Now as in this case we form a definite concept of a special existence, by imposing limits and conditions in successive acts, so in the converse case, by taking away limits and conditions in successive acts, we form an indefinite notion of general existence. By fusing a series of states of consciousness, from each of which, as it arises, the limitations and conditions are abolished, there is produced a consciousness of something unconditioned. To speak more rigorously — this consciousness is not the abstract of any one group of thoughts, ideas, or conceptions, but it is the abstract of *all* thoughts, ideas, or conceptions. That which is common to them all we predicate by the word 'existence.' Dissociated as this becomes from each of its modes by the perpetual change of those modes, it remains as an indefinite consciousness of something constant under all modes — of being apart from its appearances. The distinction we feel between special and general existence is the distinction between that which is changeable in us and that which is unchangeable. The contrast between the Absolute and the Relative in our minds is really the contrast between that mental element which exists absolutely and those which exist relatively.

"So that this ultimate mental element is at once necessarily indefinite and necessarily indestructible. Our consciousness of the unconditioned being literally the unconditioned consciousness, or raw material of thought to which in thinking we give definite forms, it follows that an ever present sense of real existence is the very basis of our intelligence. As we can in successive mental acts get rid of all particular conditions and replace them by others, but cannot get rid of that undifferentiated substance of consciousness which is conditioned anew in every thought, there ever remains with us a sense of that which exists persistently and independently of conditions. While by the laws of thought we are prevented from forming a conception of absolute existence, we are by the laws of thought prevented from excluding the consciousness of absolute existence; this consciousness being, as we here see, the obverse of self-consciousness. And since the measure of relative validity among our beliefs is the degree of their persistence in opposition to the efforts made to change them,

it follows that this which persists at all times, under all circumstances, has the highest validity of any.

"The points in this somewhat too elaborate argument are these: In the very assertion that all knowledge, properly so called, is Relative, there is involved the assertion that there exists a Non-relative. In each step of the argument by which this doctrine is established, the same assumption is made. From the necessity of thinking in relations, it follows that the Relative is itself inconceivable, except as related to a real Non-relative. Unless a real Non-relative or Absolute be postulated, the Relative itself becomes absolute; and so brings the argument to a contradiction. And on watching our thoughts, we have seen how impossible it is to get rid of the consciousness of an Actuality lying behind Appearances; and how, from this impossibility, results our indestructible belief in that Actuality."

Now, I have stated some pages back that the first objection to the Unknowable is that we have absolutely no foundation in our experience for the assumption of its existence. Is not that objection answered here? Surely every careful reader of the extract given above must see that the only Unknowable with which Mr. Spencer's argument is concerned is an *internal* Unknowable, a something which the man hopelessly wedded to the insanities of idealism may accept as frankly as Mr. Spencer. It is "an indefinite consciousness," "raw material of consciousness," an "indefinite thought," an "abstract of *all* thoughts, ideas, or conceptions." All doubts as to its nature should be set at rest by the unequivocal statement that "our consciousness of the unconditioned" is "literally the unconditioned consciousness, or raw material of thought to which in thinking we give definite forms." It is this "undifferentiated substance of consciousness which is conditioned anew in every thought" that remains with us as an Absolute through all forms of the conditioned.

This, then, is the Reality for which Mr. Spencer argues! It is what is left when the differences which distinguish mental phenomena are cancelled — it is their common core. But this is not an external Reality. It cannot possibly extricate us from the perplexities of the idealist and furnish us with a World. So palpably unequal is it to the task, that Mr. Spencer at once abandons it and turns to an Absolute, an external Reality, of a wholly different nature, with which the argument has no connection whatever.

This new Reality is assumed without any argument. It is not to be found *in* our experiences by a process of abstraction; it lies *behind* them. It is an *Inscrutable Power* whose nature transcends intuition and is beyond imagination. It seems absurd to speak thus of the raw material of thought. We may speak of the *actions* of this Unseen Reality; it is an *Unknown Cause* which *produces* in us certain beliefs and thereby *authorizes* us to profess and act them out; we must not in our thought degrade it, for *it may have a mode of being as much transcending Intelligence and Will as these transcend mechanical motion.* Manifestly, this cannot be written of a raw material whose very rawness is due to the fact that such distinctions as active and passive, cause and effect, higher and lower, have been completely abstracted from.[1]

We must not, then, think of the external reality which is to save us from the idealistic chaos as being the raw material of consciousness. It is something entirely different, and in another of his works Mr. Spencer expressly recognizes the fact. He says: "The postulate with which metaphysical reasoning sets out, is that we are primarily conscious only of our sensations — that we certainly know we have these, and that if there be anything beyond these serving as cause for them, it can be known only by inference from them.

"I shall give much surprise to the metaphysical reader if I call in question this postulate; and the surprise will rise into astonishment if I distinctly deny it. Yet I must do this. Limiting the proposition to those epi-peripheral feelings produced in us by external objects (for these are alone in question), I see no alternative but to affirm that the thing primarily known is not that a sensation has been experienced, but that there exists an outer object."[2]

Thus we primarily know, not our sensation nor the raw material of our sensations, but a something beyond, — a something which produces them and their raw material. It is of no little importance to bear this in mind. As long as we regard our external Reality or our Absolute as no more than "an indefinite consciousness" or "an indefinite thought," its existence appears to have for us at least a semi-intelligibility. It is found in our experience; it is that mental element which all thoughts, ideas, or con-

[1] Mr. Spencer's catalogue of the attributes of his second Absolute fills Chapter V.

[2] "Principles of Psychology," Part VII, Chapter VI, § 404.

ceptions have in common. But the external Reality which is *beyond* all thoughts, ideas, and conceptions is neither a definite nor an indefinite element in our experience. It does not *exist*, in the sense in which such elements may be said to exist; that is to say, it has no place in the circle of our experiences; it is not *given* as they are given.

The Absolute *contained in* appearances, their common core, is a thing to be attained by a legitimate process of abstraction with which we are all familiar; and when it is attained, it is a something to which it seems possible to point and of which it does not seem to be nonsense to speak — it is an *indefinite thought*. When one is discoursing of such a thing as this, speech has not become wholly without significance. There can, however, be no greater blunder than the transference of this significance to an Absolute which is not an indefinite thought, cannot be proved to exist as an indefinite thought can, and cannot hold in experience the place appropriate to an indefinite thought, whatever that place may be.

It can hardly be gainsaid that Mr. Spencer, in confusing the two Absolutes, and in passing over without apology from the first to the second, has given to the statement that this latter Absolute exists something like a meaning. This meaning must carefully be denied to it. The reader must resolutely forget all that he has said in the long extract given above, for it has no bearing upon the case, and is wholly misleading.

Nor must one carry over to this Absolute, as we have seen, any other distinctions which have their significance only within the realm of our experience. Mr. Spencer carries over a host of such. He conceives his external Reality as "lying behind appearances," or as "underlying appearances"; we have seen that the relation of the Unknowable to phenomena cannot possibly be that of reality to appearance. He calls it an Incomprehensible Power; we call a thing a power when it has certain definite ear-marks; that which can do nothing in any intelligible sense of the words is not a power. He speaks of its presence; it is not present in consciousness, and it remains to show in what sense it can be present to anything. He makes it external; it has no place in the outer world as it is revealed to us. He calls it a Reality; it is impossible to show that it is real as are those things which we commonly call real and which we distinguish from things unreal. He calls it a Cause; it stands quite outside of any chain of causes and

effects of which science knows anything, and with which men of science ever think it worth while to occupy themselves.

It is clear, then, that every gleam of meaning which Mr. Spencer allows to light up the darkness of the Unknowable, is a gleam which must logically be excluded. This he himself admits, for has he not informed us that we can only escape error by regarding every notion we frame of the Unknowable "as merely a symbol," while making it very plain that the symbol does not symbolize?[1] Of course, this means, if it means anything, that when we call the Unknowable external, and a Power, a Cause and a Reality, we are quite as wide of the mark as though we were to call it internal, and an Impotence, an Effect and an Unreality. If words must be stripped of all meaning before we apply them to the Unknowable, there can be no good reason for employing one word rather than another when one describes it. We cannot find fault with the man who elects to call the thing an emotion, a button, or a cocked hat, if it is clearly understood that he is not supposed to mean what he appears to be saying.

I must apologize to the reader for dwelling so long upon Mr. Spencer's doctrine. It has been criticised very often, and it is easy to criticise. But I am most anxious that it be clearly seen that a genuine and unadulterated Unknowable is really nothing at all. When one has washed it clean, there is no residue whatever. One cannot construct a world out of mental phenomena *plus* an Unknowable,[2] for in adding the latter one has added nothing to the mental phenomena.

Thus we seem to be left sticking in the difficulty that embarrassed us at the beginning of the chapter. We cannot say that the world as it really existed before the advent of sentient creatures was the Unknowable. We have no reason for saying this, and when we have said it, we have said nothing. Did a world exist at all? Science and common sense say: Yes. But what world? The world as described to us in touch-movement sensations, or rather, in elements which *may* be regarded as touch-movement sensations? a world appropriate to such a creature as man is? How could such a world have existed when as yet the senses had not been developed that make touch-movement sensations possible?

[1] "First Principles," Part I, Chapter V, § 31.

[2] I do not think it is necessary to comment upon the passages in which Mr. Spencer seems to hold to a phenomenal world beyond consciousness, *e.g.* Part I, Chapter III, § 15; Part II, Chapter II, § 44, and Chapter III.

Let us go back a little; and let us remember that words must not be used without a meaning. We have seen what *real existence* means. We must not get away from this meaning. Certain phenomena fall into what I have called the objective order. A consciousness of this order is a consciousness of the external world. A real external thing is a something having its place in this order. As having such a place it has real existence.

This order is spread out in space and time; in other words, space and time are the *plan* of the system. A real thing may be now before me; that is, it may have its place in the system at a point called the present. But it may just as well have its place at a very different point in the system; that is, it may belong to the remote past. Its right to be called real does not derive from its being present here and now; it derives from its having a place in the system. Hence, when I ask whether the world ever was as the geologist tells me it was before life appeared on this planet, I am asking whether the phenomena indicated in his description may really be accepted as belonging to the objective order, whether they may legitimately be assigned a place in that series.

Now, as we shall see in the next two chapters, we do not merely recognize an objective order, the external world, and a single subjective order which we recognize as our own mind. We recognize the existence of a multitude of other minds, past and present, related to other bodies as our mind is related to our body. That is to say, we relate to various groups of phenomena in the objective order certain groups of phenomena not themselves in the objective order.

We must not forget that it is *to certain phenomena in the objective order* that we seem justified by experience in relating our own and other minds. An Unknowable, a Thing-in-itself, a Noumenon, never enters into the question at all. And we must not forget that when we say: if our senses were different, the whole external world would be perceived to be different, we only mean that, given certain changes in the objective order, the whole objective order would have to be transformed in harmony with those changes.

The statement that, if our senses were different, the external world upon which we gaze would be perceived to be different, is not a statement made at random. It is a recognition of the fact that we can pass from the objective order in one form to the objec-

tive order in another form. The question may at once be raised: Is this the same objective order? Are we speaking of *the same external world?* But I ask the reader to remark the fact that we pass *from* the objective order in the one form *to* the objective order in another. We are not concerned with two disconnected worlds; if we were, any such transition would be impossible. We remain always, if we reason soberly and talk sense, within the one system of phenomena. We pass from part to part of this system, not from one system to another independent of it; if we choose, we may indicate this fact by saying that we pass, not from one external world to another, but from one *aspect* of the external world to another.

When the man of science gives us an account of the world as it was before life appeared on this planet, he is carrying back for us the objective order upon which we gaze, and the elements which compose it throughout are not different from those in which the world presents itself to us now. If, however, his account is a good one — if it is true — and if it is ideally complete, we can, provided we are able to supplement it with an equally complete knowledge of the relations of the phenomena of the subjective order to those of the objective order (*i.e.* of the relations of our mind to our body), use the information he gives us as a foundation from which we may pass to the phenomena of the objective order and of the subjective order as they may be revealed in the experience of every possible creature.

This statement will, I hope, become clearer to the reader when he has read the two chapters that follow this one. It amounts to saying that if we had an ideally perfect knowledge of the objective order and of the subjective order as they present themselves in our experience, and had an ideally perfect knowledge of their relations, we should have the key to a perfect knowledge of the external world in all its aspects and to the contents of all minds. *In other words, we might know everything of which it means anything to say: it exists.* That we fall pitiably short of this ideal, it is scarcely worth while to emphasize.

Thus we see that, if the man of science does his work well, he is helping us to an objective order which will serve to unify and bring into a system all conceivable phenomena. His account of the world is not the only conceivable account of the world; but it is as true as it is conceivable that any account of the world should

be; and from it every other possible account can, theoretically, at least, be deduced.

Perhaps one will admit as much as this, and, nevertheless, feel disposed to complain. One may insist that such an account as I am discussing gives us, after all, not the external world as it is, but the external world as it is perceived, or might be perceived, by us — in other words, it gives us only our impressions of an external world, impressions from which we seem to be able to pass to other impressions appropriate to us or to other creatures.

I answer: first, that "the external world as perceived by us" is by no means a thing to be confounded with "our impressions of an external world." In the first case, we are concerned with an objective order as objective, a something to which our own and other minds are referred and from which they are distinguished. In the second, we are concerned with a collection of phenomena referred to a particular mind. The two constructs are by no means identical, and they must not be interchanged. It is *not* absurd to say my mind is referred to a certain body in the external world perceived by me, and another mind is referred to another body in the same external world perceived by me. It *is* absurd to say my mind is referred to a certain group of impressions in my mind, and another mind is referred to another group of impressions in my mind.

And I answer: second, it is a misapprehension to suppose that "the external world as it is" can be anything else than "the external world as it is perceived by me," or the external world as it is perceived by some other creature. Words must not be used without a meaning. What we mean by the expression "the external world" is a thing to be discovered by analysis. Analysis seems to reveal that it always means the objective order of experience as contrasted with the subjective. As, however, there are no phenomena in the objective order which may not take their place in the subjective order and be contrasted with another objective, it is easy to fall into the error of supposing that all our experiences are subjective — which is absurd — and of feeling compelled to look for a something objective which cannot take its place in the subjective order under any circumstances. For those who seek such an "objective something" nothing remains but the Unknowable, which is neither *something* nor *objective*, in any intelligible sense of the words.

We come round, then, to the questions raised at the beginning of the chapter. Shall we maintain that the world existed in the remote past, and that it exists now when unperceived? Yes. Shall we admit that the man of science can tell us what it was and is like? Certainly. To be sure, the question must be given a meaning, if it is to be regarded as worthy of an answer. When it is given a meaning, it is not difficult to find for it an answer. One must not make of it an absurd question, and ask, in effect: How does the world look to a creature that is not looking? The philosopher can be better employed in some other way than in seeking the answer to such a question as this.

PART IV

OTHER MINDS, AND THE REALM OF MINDS

CHAPTER XXVII

THE EXISTENCE OF OTHER MINDS

In the preceding chapters I have from time to time spoken of other minds as though every man had good reason to believe that other minds than his own existed, and as though he could understand what I meant when I referred to such. This I had a right to expect of him, for common thought accepts without question an external world and a realm of minds in relation to it; in a sense cut off from each other, it is true, and yet quite well aware of each other's existence.

But just as it is possible to recognize the distinction between one's own mind and the external world, and to feel assured of the existence of both, without on that account being able to make clear what this distinction implies, so it is possible to recognize the existence of other minds without having a very clear consciousness of just what one means by these words, and without feeling able to defend before the bar of reason what seems to be one of the most natural beliefs in the world.

It is a commonplace of literature that we arrive at a knowledge of the existence of other minds by a process of inference. That we are not conscious of the contents of other minds as we are conscious of the contents of our own, every one is ready to admit. The only question seems to be as to the precise nature of the inference, and as to its justification. We have seen that, to a man who remains upon the psychological standpoint, the existence of the external world must be matter of inference, and we have also seen that the inference is quite without justification. He has, by hypothesis, nothing but ideas to start with, and he can end with nothing but ideas, for there is nothing in his experience that can carry

him from idea to thing. It seems fair to ask whether we have not something similar in the present case — whether, since we admit that we can never perceive directly what is in another mind, and cannot verify our inferences by observation, we must not also admit that our belief in the existence of other minds is a belief which cannot really be established by proofs? If I could once observe a connection between certain experiences of my own and another mind — not infer it, but actually observe it — such an observed connection might furnish the ground for a multitude of inferences; but in the absence of even a single observed fact, how can I proceed without being plagued by the consciousness that the whole fabric I am building up may be no more than my own dream?

John Stuart Mill thought that the existence of other minds could be *proved*, and he has presented his argument in his usual clear and trenchant style. He writes:[1] —

"By what evidence do I know, or by what considerations am I led to believe, that there exist other sentient creatures; that the walking and speaking figures which I see and hear, have sensations and thoughts, or, in other words, possess Minds? The most strenuous Intuitionist does not include this among the things that I know by direct intuition. I conclude it from certain things, which my experience of my own states of feeling proves to me to be marks of it. These marks are of two kinds, antecedent and subsequent; the previous conditions requisite for feeling, and the effects or consequences of it. I conclude that other human beings have feelings like me, because, first, they have bodies like me, which I know, in my own case, to be the antecedent condition of feelings; and because, secondly, they exhibit the acts, and other outward signs, which in my own case I know by experience to be caused by feelings. I am conscious in myself of a series of facts connected by a uniform sequence, of which the beginning is modifications of my body, the middle is feelings, the end is outward demeanor. In the case of other human beings I have the evidence of my senses for the first and last links of the series, but not for the intermediate link. I find, however, that the sequence between the first and last is as regular and constant in those other cases as it is in mine. In my own case I know that the first link produces the last through the intermediate link, and could not produce it

[1] "Examination of Sir William Hamilton's Philosophy," Chapter XII.

without. Experience, therefore, obliges me to conclude that there must be an intermediate link; which must either be the same in others as in myself, or a different one. I must either believe them to be alive, or to be automatons; and by believing them to be alive, that is, by supposing the link to be of the same nature as in the case of which I have experience, and which is in all respects similar, I bring other human beings, as phenomena, under the same generalizations which I know by experience to be the true theory of my own existence. And in doing so I conform to the legitimate rules of experimental inquiry. The process is exactly parallel to that by which Newton proved that the force which keeps the planets in their orbits is identical with that by which an apple falls to the ground. It was not incumbent on Newton to prove the impossibility of its being any other force; he was thought to have made out his point when he had simply shown that no other force need be supposed. We know the existence of other beings by generalization from the knowledge of our own; the generalization merely postulates that what experience shows to be a mark of the existence of something within the sphere of our consciousness, may be concluded to be a mark of the same thing beyond that sphere."

In criticising another extract taken from Mill[1] I have pointed out that he slurs over the distinction between the mind and the world by absorbing the world into the mind and identifying external objects with small and definite portions "of the series which, in its entireness, forms my conscious existence." When we bear in mind what human bodies must mean to him after he has done this, we cannot but be nonplussed by his argument for other minds. At first sight it does not seem unreasonable to say that I know by experience that my body is an antecedent condition of my feelings, and that motions of my body are effects or consequences of my feelings. It seems equally reasonable to maintain that, when I see another human body acted upon by something, and then observe a certain kind of reaction, I may argue by analogy to a link of feelings between the two. But let us remember that we are, for the moment, disciples of Mill, and let us scrutinize the two statements.

May we really maintain that experience presents us with the chain of three links indicated by Mill? Does experience reveal to me as standing in a certain relation of antecedence and consequence

[1] See Chapter XXIII.

(1) my body, (2) my consciousness, and (3) changes in my body? I have discovered that my body and the changes in my body, or, to be a little more accurate, my body in one condition and my body in some other condition, are nothing more than definite groups of my feelings, *i.e.* parts of consciousness, and it seems absurd to interpolate my consciousness as a whole between them. In common speech it would not be tolerated if the plain man said, "I perceive that all that I perceive is an intermediate link between two states of a thing that I perceive." The psychologist would frown upon the statement that the whole of a man's consciousness is perceived by him to be an intermediate link between two of his percepts. It is no whit more sensible for the metaphysician to say such things than it is for another man; and when he finds that he has said such a thing, it only remains for him to retract it.

Thus we see that, in turning the external world into "feelings," Mill has lost the first and the last of the three links, furnished by experience, which are to make possible an analogical argument which will result in other minds. It is the old story of the telephone exchange absorbed by the clerk. He cannot discover himself to be an intermediate link between two wires, when both the wires are discovered to be in him. And this absorption of the telephone exchange is as fatal to the notion of subscribers as it is to that of wires. If I stand at one end of a wire, and a subscriber stands at the other end of the same wire, the relation between us is a conceivable one. We are at least in the one world. But if each has a world to himself — a world with its own space and time, a world wholly disconnected with every other — it seems absurd to speak of relations between such, and to attempt to pass in any sense of the word from one such world to another.

Now we must not forget that, to the disciple of Mill, everything that I can perceive must take its place among my feelings. Moreover, we must remember that "the particular series of feelings which constitutes my own life is confined to myself; no other sentient being shares it with me." This means that no one of the things that I can perceive is in his world, and no one of the things that he can perceive is in mine. His body is my percept; the changes in his body are my percepts. Shall I place as an intermediate link between two of my percepts his consciousness, a consciousness similar to my own? This means that between two states of a small object in the world I perceive, I am to place as an

intermediate link a whole world like the one I perceive. What does it mean to place such a world between the two? Simply nothing at all. As well try to patch the space I know with a space admittedly discontinuous with it.

It may be objected that this interpolation must at least not be conceived to be of a material sort; that Mill is not talking about material things, but about feelings. I answer, It is not easy to distinguish between the two, when one has turned material things into feelings. But the objection has, at least, so much weight; the world interpolated is not to become a part of the world in which it is to play the rôle of an intermediate link. This I have recognized in the above illustration, in remarking that the new space which is to be made an intermediate link between two parts of the old is discontinuous with the old. One may move in every direction through the old without anywhere meeting it. It seems quite fair in such a case to ask what is meant by calling it an intermediate link; and it seems quite clear that one must accept the echo of one's question for an answer.

But if it is desired to avoid such words as "world" and "object," and to speak only of "feelings" and "states of consciousness," I have no objection to the change. I insist, however, that the interjection of the intermediate link remains as mere a form of words as before. That another man's mind should be an intermediate link between two groups of my feelings can seem to be a satisfactory statement only to the man to whom strings of vocables seem precious in themselves considered. What does it *mean* to be such an intermediate link? My feelings as a whole are absolutely cut off from the feelings of another man; his feelings as a whole are absolutely cut off from mine. What can I mean by a link that is absolutely cut off from the things it is supposed to link? The sentence appears to be mere noise. And if one is tempted to drop the word "link," and say, instead, certain changes in my feelings "reveal the presence" of another consciousness, I ask: What can one possibly mean by the word "presence" in such a connection? In what sense can the new space be said to be *present* to some part of the old, when it has been declared discontinuous with it? I may be permitted the figure, for the analogy is a close one.

The difficulty of conceiving the relation between two consciousnesses was much more vividly perceived by Clifford than it was by

Mill, and it stares us very directly in the face in his doctrine of ejects. He writes as follows:[1] —

"The inferences of physical science are all inferences of my real or possible feelings; inferences of something actually or potentially in my consciousness, not of anything outside of it.

"There are, however, some inferences which are profoundly different from those of physical science. When I come to the conclusion that *you* are conscious, and that there are objects in your consciousness similar to those in mine, I am not inferring any actual or possible feelings of my own, but *your* feelings, which are not, and cannot by any possibility become, objects in my consciousness. The complicated processes of your body and the motions of your brain and nervous system, inferred from evidence of anatomical researches, are all inferred as things possibly visible to me. However remote the inference of physical science, the thing inferred is always a part of me, a possible set of changes in my consciousness bound up in the objective order with other known changes. But the inferred existence of your feelings, of objective groupings among them similar to those among my feelings, and of a subjective order in many respects analogous to my own, — these inferred existences are in the very act of inference *thrown out* of my consciousness, recognized as outside of it, as *not* being a part of me. I propose, accordingly, to call these inferred existences *ejects*, things thrown out of my consciousness, to distinguish them from *objects*, things presented in my consciousness, phenomena. It is to be noticed that there is a set of changes of my consciousness symbolic of the eject, which may be called my conception of you; it is (I think) a rough picture of the whole aggregate of my consciousness, under imagined circumstances like yours; *quâ* group of my feelings, this conception is like the object in substance and constitution, but differs from it in implying the existence of something that is not itself, but corresponds to it, namely, of the eject. The existence of the object, whether perceived or inferred, carries with it a group of beliefs; these are always beliefs in the future sequence of certain of my feelings. The existence of this table, for example, as an object in my consciousness, carries with it the belief that if I climb up on it I shall be able to walk about on it as if it were the ground. But the existence of my conception of you in my consciousness carries with it a belief in the existence of

[1] "On the Nature of Things-in-Themselves."

you outside of my consciousness, a belief which can never be expressed in terms of the future sequence of my feelings. How this inference is justified, how consciousness can testify to the existence of anything outside of itself, I do not pretend to say: I need not untie a knot which the world has cut for me long ago. It may very well be that I myself am the only existence, but it is simply ridiculous to suppose that anybody else is. The position of absolute idealism may, therefore, be left out of count, although each individual may be unable to justify his dissent from it."

In this passage much emphasis is laid upon the fact, also insisted upon by Mill, that the whole world perceived or perceivable by me must be regarded as nothing else than "my feelings." The distinction between my feelings and the feelings of another is made so clear that it is impossible to obliterate it — the gulf is made impassable. It is, therefore, but natural that Clifford should recognize that he cannot logically bridge it. I cannot step from my body to my consciousness and from that to my body again, and, with the impetus thus acquired, step from the body of another man to his consciousness and then to his body, as Mill would have me. Both my body and his body are phenomena in my consciousness, and when I make an attempt to step out of my consciousness, I find that I do not know even how to begin. It is precisely as though I were to attempt to step, from the space in which I live and move, into another space which can form no part of the space which lies around me. In what direction shall I step? Evidently, in none; for every direction leads to more space of just the kind that I am not seeking. Yet I *must* step in some direction, for a step that is not in any direction cannot by the extremest stretch of courtesy be called a step at all. And just as little can an inference that is both groundless and meaningless be called an inference.

It is odd that Clifford, having declared his gulf impassable, should remark that we need not worry over difficulties that lie behind us, and may content ourselves with the reflection that we all passed over this gulf long ago. This is a return to common sense with a vengeance, and would, if consistently adhered to, make short work of the reasonings of the philosophers. The Zenonic puzzles touching the infinite divisibility of space would disappear like magic. Does not every one know that spaces are passed over and that minutes come to an end? The external world would be rehabilitated. Does not every one know that

chairs and tables are not feelings and cannot by any sane man be mistaken for feelings? The men who rashly declare that minds are the only realities would be roughly put in their place — among them Clifford, whose doctrine of things-in-themselves would be unable to obtain even a hearing.

It seems as odd that, after finding the gulf impassable, Clifford should have fallen back in the same essay upon the bridge approved by Mill, and have elaborated an argument for passing from minds to bodies and from bodies to minds, even formulating a rule-of-three method of discovering the exact contents of other minds.[1] That he did so simply shows that men are impelled, when they find that the logical consequences of their doctrines are repellent to common sense, to repudiate those consequences whether they can find a justification for doing so or whether they cannot. By hook or by crook Descartes and Locke were determined to hold on to an external world; by hook or by crook Clifford was determined not to be a solipsist, the sole inhabitant of a solitary world — perhaps I would better say, was determined not to *be* that solitary world. To all three it seemed absurd to act otherwise.

And, indeed, solipsism does seem an absurdity unworthy of a serious mind. The dreary situation of the man who believes himself to be his own and sole universe has been pictured in characteristic style by Jean Paul Richter:—

"The very worst of it all is the lazy, aimless, aristocratic, insular life that a god must lead; he has no one to go with. If I am not to sit still for all time and eternity, if I let myself down as well as I can and make myself finite, that I may have something in the way of society, still I have, like petty princes, only my own creatures to echo my words. . . . Every being, even the highest Being, wishes something to love and to honor. But the Fichtean doctrine that I am my own body-maker leaves me with nothing whatever — with not so much as the beggar's dog or the prisoner's spider. . . . Truly I wish that there were men, and that I was one of them. . . . If there exists, as I very much fear, no one but myself, unlucky dog that I am, then there is no one at such a pass as I. The only enthusiasm left me is logical enthusiasm — all my metaphysics, chemistry, technology, nosology, botany, entomology, are summed up in the old adage: Know Thyself. I am not merely, as Bellarmin says, my own Saviour, but also my own Devil, Executioner,

[1] I have discussed this at length in Chapter XXI.

and Master of the Knout. . . . Around me stretches humanity turned to stone. In the gloomy uninhabited void glows no love, no admiration, no prayer, no hope, no aim. I am so wholly alone; nowhere a heart-beat; no life, nothing, about me; and without me nothing but nothing. . . . Who hears my wail, and who knows me now? Ego. Who will hear it, and who will know me to all eternity? Ego."[1]

Richter's eloquence is, to be sure, too generous to the solipsist, for he who has become the whole universe cannot in decency speak of humanity as around him turned to stone. There is no "around him" — the words are nonsense. Nor can he desire to associate with any one else. It is mere absurdity to speak of one universe as associating with another. How shall they begin their billing and cooing when they have not even the same space and time? Evidently the solipsist is a man who declares himself to be the universe, without wholly letting go the old common-sense notion of selves as things belonging to the one universe, and capable of standing in some sort of relation to each other. From a philosophical point of view, it would have been better had Jean Paul not attempted to prove the solipsist a miserable creature, but rather had he pointed out that he is a logical absurdity, an impossible creature, one who has no right to be an "ipsist" at all.

Richter grants the solipsist too much, and in granting it he appears to admit that the existence of other minds is not precisely a thing to be proved, but rather a postulate. It has seemed to many acute minds that it is not precisely a thing to be proved. Sometimes one meets with the explicit admission that, although it is not a thing to be proved, yet we are justified in assuming it as the result of an argument from analogy — a position which sets one to wondering what we are to understand by the use of the word "justified." "It must be premised," writes Professor Huxley, "that it is wholly impossible absolutely to prove the presence or absence of consciousness in anything but one's own brain, though by analogy, we are justified in assuming its existence in other men."[2]

The analogical argument which is to furnish this justification is the argument set forth by Mill — we have body, mind, and body, in our own case; and we assume the chain, body, mind, body, in

[1] "Werke," ed. Reimer, Berlin, 1827, Bd. XXX, ss. 65–68.

[2] "Collected Essays," N. Y., 1902, Vol. I, p. 219.

the case of others. The argument for other minds always does come back to this, no matter who employs it, or how small his right to employ it may be. It is the argument of Berkeley, of Mill, of Clifford, of Huxley; and yet no one of these men had the least right to it, for no one of them could pass from body to consciousness, and from consciousness to body, after absorbing the body into the consciousness. That they all clung to it in spite of their philosophical opinions, clung to it as tenaciously as the plain man clings to his belief that minds are revealed by bodies, and that a body which acts as does his own reveals a mind like his own, suggests that there may be more in the argument than they seem to have gotten out of it.

And, indeed, there *is* more in the argument. The idealist spoils it by reducing his chain of three links to one. As he turns all things into the mind, there remains nothing to which he can relate his own mind or any other. If we avoid this error, and if we interpret the argument aright, there is no reason why we should repudiate it. It is nothing more than an explicit statement of an inference implicitly recognized as reasonable by the plain man every day of his life; and recognized as reasonable by no arbitrary act of volition, but seen to be *justified* by experience in an intelligible sense of the word.

The plain man does not suppose the material world upon which he gazes to be in his mind. On the contrary, he supposes his mind to be in the world, although, as we have seen, it will not do to ask him too many questions about the precise meaning of this "in." He believes that he can pass from the world to his mind and from his mind to the world, as, indeed, he can. And as he conceives his mind to be in the world — in a definite part of the world, his body — so he conceives other minds to be in the world, *i.e.* to be in other bodies. Minds are all about him; they are not banished to separate universes, but form one community. He admits that he cannot directly perceive another mind, but he thinks he can locate it in an indefinite sort of a way, at least; and he never dreams of thinking that he stands alone.

If we will examine the argument of Mill, or of any other idealist who has fairly faced this problem, we shall see that he, too, falls back upon the external world as does the plain man. In the same passage in which Mill tells me that my notion of myself "includes all possibilities of sensation, definite or indefinite, certified

by experience or not, which I may imagine inserted in the series of my actual and conscious states," he also informs me that "the Possibilities of Sensation which are called outward objects, are possibilities of it to other beings as well as to me." How is it possible that a part of my mind should also be a part of another mind? Is not the series of feelings which constitutes my own life confined to myself? Can I perceive directly even a part of another mind? It seems very clear that the "outward objects" thus recognized by Mill must be something distinct from feelings simply. Feelings as feelings are never shared; they are *felt* by one, and *inferred* by another. This Mill has clearly recognized; he ought in consistency to acknowledge explicitly, as he has acknowledged implicitly, that the external objects among which the body is to be classed are not feelings.

The truth is, that such writers as Mill and Clifford give no unequivocal recognition to the objective order of experience, although it is abundantly evident that they are forced to give it an involuntary and more or less ambiguous recognition. To declare that the things with which physical science concerns itself are "always a part of me" is to deny such an order altogether. It is to recognize only the subjective order. But if we will recognize only one side of a door, we must admit that the thing we recognize cannot be recognized as one side of a door. We must smuggle in the other, somehow, in order to keep the side we have the thing it is. It is this that is done by Pearson, when he finds a sufficiency of mystery in the universe of sensation which contains "little corners of consciousness."[1] This universe of sensation is the external world, the objective order, grudgingly acknowledged to be external and objective; and the corners of consciousness are minds. If we will unequivocally deny the universe of sensation, our corners will cease to be corners, *i.e.* to be minds. They will have none of the earmarks by which a mind is known to be such.

But if we will frankly recognize the objective order, we need not fall into such embarrassments, nor will it seem inconceivable that there should be a realm of minds. The plain man distinguishes between the world, his own mind, and other minds. To deny the existence of any one of these seems to him to be insane. This is not the opinion of a man here and there; it is the opinion of the race. Science recognizes it as justifiable; the physical sci-

[1] See Chapter XXII.

ences occupy themselves with the world of matter, and never suppose that their inferences have anything to do with your feelings or mine; the science of psychology does suppose itself to be concerned with your feelings and mine, even with the objective order *as revealed in our consciousness*, and does not regard itself as trespassing upon the field of physical science. These distinctions it is surely not the duty of the metaphysician to obliterate. It is his business to *analyze* such conceptions as "the external world," "my mind," and "other minds." If the result of his efforts is a chaos in which they all disappear, he should admit that there is more sense in common sense than there is in his metaphysics, and he should take a fresh sheet and begin again.

Now, we have seen that the distinction recognized by the plain man between his mind and the external world is a perfectly just distinction. It is a recognition of the subjective order of experience and of the objective order. Neither his mind nor the external world is arbitrarily assumed by him to exist. Both are given, *i.e.* there are experiences which arrange themselves in the two orders, and the one order is not more immediately given than the other.

We have also seen that the plain man is not wholly in the wrong in maintaining that his mind is in his body. He is apt to take this *in* too literally, but in speaking as he does he is recognizing the fact that it is the reference to his body that marks the phenomena of the subjective order, and distinguishes them from those of the objective. It is precisely this distinction that is admitted by Mill when he speaks of passing from body to consciousness and from consciousness back to body. He is recognizing an objective order and a subjective order, and is recognizing, too, that the body is, so to speak, their point of contact.

But it is of the highest importance not to confuse the phenomena of the two orders even for a moment. One must never forget that a percept of the body is not the body, and that the body is never a percept. Hence the man who speaks of passing from body to mind and from mind to body again, *i.e.* the man who is endeavoring explicitly to recognize both orders and their relation, must never admit that in passing from body to mind and from mind to body he is remaining within the charmed circle of Himself. To say this is to deny that there are two orders. *His consciousness*, or *himself*, is a thing made up of percepts and various other mental

phenomena; it is perceived to be related to a body, and through that body to a whole world of other material things, but it contains no material thing whatever. Its relation to the body is, as we have seen, conveniently symbolized by the psychologist under the figure of parallelism: it is the halo and the body is the saint. To speak of the halo as containing this saint and all others is nonsense. No halo can do this and still be a halo.

There is, then, an external world, and it contains a great many saints. Shall our plain man grant to each of them a halo, or shall he maintain that he alone is thus crowned, and that all the rest go bare-headed? It should be observed that, in asking him to crown them all we are not asking him to perform an inconceivable feat. Of course, if the whole external world is assumed to be a part of his mind, he cannot relegate his mind to this part of the external world and another mind to that part. If all saints really are in his halo, it is absurd to speak of allowing them similar halos of their own. But since such an assumption is palpably absurd, and since there really are many saints, why not grant to each his halo? It cannot be maintained that the relation of body and mind is an inconceivable one; for the relation of one mind to one body is given in experience, and it is quite conceivable that a similar relation should hold between other minds and other bodies. One may fall back upon the figure employed by the parallelist, and conceive of a whole series of halos as related to a whole series of bodies, and as, through these bodies, related to each other.

Perhaps it will be admitted that this is a perfectly thinkable scheme — that the construction is not an impossible one — and will, nevertheless, be maintained that the existence of these other minds can never be *proved*. Mill appears to arrive at his conclusion, notwithstanding his avowed separation of minds from each other, and notwithstanding his denial of a world properly external, by putting minds very literally into the one world, and by making them parts of it much as though they were material things. He passes from body, as antecedent, to consciousness as a consequence; and from consciousness as a condition, to bodily motions as its effects. The mind is thus recognized as a link in a series of causes and effects.

But when one has recognized that mind must not be materialized, and has adopted the parallelistic scheme, must one not abandon this argument? For example, I stand opposite another man's body;

it is at rest; I stick a pin into it; it turns about and protests vehemently. If I recognize the universe of matter to be a perfect mechanism, must I not admit that the whole reaction which I sum up as his protest is susceptible of a purely mechanical explanation? The dilated chest, the clenched fist, the flashing eye, the quivering nostril, the interrupted breath which sends its message to my ear as articulate speech — are not all these the effects of motions in matter, and of nothing else? From pin-point to profanity there is an unbroken path, from which I wander merely through ignorance. At what point in such a series of causes and effects can I interject a mind? A mind can have no place in such a series. Why, then, assume a mind at all?

One need not, however, throw away Mill's argument merely because it has taken a materialistic turn. Its force lies in allowing to other bodies minds related to them *as we conceive our own mind to be related to our body*. If he has misconceived this relation, we should correct the misconception, and hold to what is good in his argument.

If I regard the material world as a perfect mechanism, and employ the figure of parallelism to symbolize the relation of mind to body, I must, of course, admit that no bodily movement, no word, and no gesture of the man at whom I am looking, can be referred to his mind as an effect is referred to its cause. But if I hold this position, consistency compels me to admit that my own words and gestures are equally the result of mechanical causes, and that no one of them can be referred to my own mind as its effect. This does not in the least compel me to deny that there is a subjective order of experience and an objective order. It means merely that I hold carefully to the distinction between the two, and do not obliterate it by heedlessly making the subjective order a part of the objective — by putting my mind into my body in a material way. My mind and my body are given in experience, and their observed relations are symbolized in the statement that my mind is parallel to my body, and is not a thing in interaction with it.

Now I have already pointed out that the parallelist is a man of robust faith. He speaks of a point-for-point correspondence between mind and brain, and he really knows scarcely anything of what takes place in his brain when he is having this or that mental experience. Of the two parallels, the mental one is vastly the

better known, unsatisfactory as may be our knowledge even of that one. I may be the most ardent parallelist, and yet, when I come to explain my actions, I may pass over in silence the cerebral changes which I believe to correspond to my mental states.

I have boxed a man's ears; why did I do it? He called me a fool; that was exasperating, to begin with. Then I called to mind the fact that he was guilty of this indiscretion once before, and that on various other occasions he had given expression to his contempt for my person in an unmistakable way. It is to these things that I refer in accounting for my violence. Parallelist or not, I cannot point out the particular cerebral disturbances which were the mechanical antecedents of my action, for I have not the faintest idea how they differ from the cerebral disturbances which would have led me to fall on his neck and forgive him. My attention is taken up, as it must be, with my percepts, memories, and emotions, and not with my bodily mechanism.

And just as I can use the contents of my mind as a bridge to pass from words which reach my ear to the movement of my arm, so I can and do connect by a similar bridge certain changes brought about in another man's body with certain other changes analogous to what I recognize in my own case to be purposeful movements. In neither case need I regard the bridge as literally a part of the mechanical series. We have seen that it is nonsense to do so. But it cannot be denied that the recognition of such bridges serves to explain, in an intelligible sense of the word, the actions of other men. They are assimilated to actions of our own; by casting about in our own minds we can see that something, not evidently a factor in the occurrence, must be assumed to be present and to be determinative of the result. A boy has received forty strokes instead of ten; the punishment seems to us severe; we discover that his father knows it to be his second offence. The physical basis of this bit of information must lie hidden from us; but when we have recognized the bit of information as present in the father's mind, we regard the augmentation of the punishment as explained. A fact which seemed to stand alone has been classed with other facts, and it no longer strikes us as surprising.

It may be admitted that, in the present state of our knowledge, it would be absurd to sweep away all such bridges; and it may be insisted, nevertheless, that if human bodies came to be far more

perfectly known than they are, it would be possible to describe and explain all the actions of which they are capable, without once referring to human minds. To those who speak thus we must concede the fact that it would undoubtedly be possible to give to every one of them a mechanical explanation.

But, as I have pointed out in an earlier chapter,[1] to do no more than this is to ignore so much of our world, that it may almost be regarded as the annihilation of our world. The material world is, to be sure, the very rock upon which the orderly system of experience rests. If it be ignored, we have a chaos, not a cosmos; and in the general ruin I cannot even save *my mind*, for, as *my mind*, it disappears with the rest. This has been made sufficiently evident in chapters preceding. But it is no less true that the material world is not the whole of experience. Its importance, as that which orders experience as a whole, cannot be overrated; but to drop quietly out of sight all that it serves to order is surely absurd. As well might some enthusiast insist that we should fix our attention exclusively upon our system of weights and measures, and should make no mention of those things that men are interested in weighing and measuring.

The world in which all men are interested is a world of minds related to each other through bodies, and it seems inconceivable that any extension of our knowledge should destroy this interest and turn us into mere mechanisms. The changes which take place in our brains are, in themselves considered, no more interesting or important than the changes which take place in so many rotting apples. It is as indicative of the presence of minds that they acquire their unique significance. It is not sensible to suppose that as I grow wiser I shall lose an interest in all save molecular changes, and shall outgrow the habit of thinking of myself and of other men as loving and hating, enjoying and suffering, feeling and knowing. Our world will always remain a world of minds, and a martyr will continue to be to us something more than roast meat.

Doubtless it will here be objected that, admitting all this, the real existence of other minds remains *unproven*. Granted that I can make a distinction between my mind and an external world; granted that I can connect my mind with a particular body in the external world; granted that I am irresistibly impelled to interpret

[1] See Chapter XVI.

the actions of other bodies after the analogy of my own, and to assume minds related to these bodies as my mind is related to my body; does it not remain true, nevertheless, that *verification* of such an inference is out of the question, and that it is always possible to maintain that I may be deceived in making it? How shall the inference be *justified?*

The question is as to the "real existence" of other minds: that I think they exist I cannot doubt; but do they really exist? Can I prove it? And what can it mean to *prove* it? Let us begin our investigation with the proof of the real existence of some material thing.

Here is the desk before me; does it really exist? Undoubtedly. I maintain that no proof of its real existence is necessary, for the desk is known immediately. But am I certain that it is a real desk, and that I am not laboring under an hallucination? It becomes evident that in calling the thing a real desk I am placing it in a certain order of experiences, and if its real existence as a material thing is called in question, I must satisfy myself that it does belong in that order. Still, I am in the habit of claiming that I know the desk immediately, for no other proof than this is demanded of its real existence, and it is at least as immediately known as any other thing. But it is not so with my neighbor's desk. I have never been in his house. He says that he sits at his desk for several hours daily, and in my mind's eye I picture him as seated before such a bit of furniture. Shall I believe that he really has a desk and really sits at it?

He says so, and I am inclined to accept his statement as justification of my belief in the fact. I have often noticed that when he and other men have declared things unperceived by me to exist, I have later been able to verify their statements. For a knowledge at second hand, I have been able to substitute a knowledge at first hand. If what the man says is true, it is possible for me to *prove* it true; and if I can think of any reason why he might be inclined to deceive me, I suspend judgment until verification becomes possible. If his desk really exists, it is a part of a system of things every part of which can (theoretically) be as directly revealed to me as is this desk before me. To assign to it real existence is to allow it a place in this system, and it is always possible to verify its existence, to *justify* my belief in its existence, by a direct or indirect appeal to such an experience as I have when I sit opposite my own desk.

Every really existent material thing can have its existence verified after this fashion.

Absolute proof of the existence of such a thing as a desk seems, then, to mean nothing else than as direct a knowledge of it as it is conceivable that I should have. Now it does not require extraordinary perspicacity to see that, when Clifford maintains that the assumption of the existence of other minds cannot be justified, and when Huxley declares that their existence cannot be absolutely proved, they have in mind a justification and a proof of precisely this description. When we recognize this to be the case, we must unhesitatingly agree with their statements. It is absolutely impossible that another mind should be revealed to me as this desk is. *Could it be so revealed, it would not be another mind.* It would be a material thing. To ask for proof of the existence of another mind, in this sense of the word "proof," is mere nonsense; it amounts to asking that another mind be shown to be, not another mind, but a material thing. For a material thing really to exist, it is necessary that it should have its place in the orderly system that we call the external world; it is inconceivable that, if other minds exist, they should exist after this fashion, and be proved to exist as such things are proved to exist.

It is equally inconceivable that they should be proved not to exist as material things are proved not to exist. I may take advantage of the absence of my neighbor, and inspect his rooms. The desk is not there. But how shall I take advantage of him and prove by direct inspection the non-existence of the "eject" which I call his mind? The fact is, that the words "proof" and "disproof," in the sense under discussion, have no meaning as applied to the existence of other minds. If, then, we say that the existence of another mind cannot absolutely be proved, and hold as our standard of proof the one set forth above, we are stating no truth that is worth putting into words. Of course it cannot be proved. It is trivial to insist that "ejects" are not to be confounded with "objects," and then to announce the discovery that "ejects" cannot be shown to be "objects."

In so far as Huxley and Clifford say no more than this, we may agree with them, and yet feel that we have made no step in advance. But in so far as they may mean to imply by their words, that the existence of other minds cannot be proved in any sense of the word, and is, hence, a legitimate subject of doubt, we have a right to enter an objection.

We may point out that each of them admits, explicitly or implicitly, that he is justified in assuming that other minds exist. Huxley denies an absolute proof, but thinks we are justified "by analogy" in connecting consciousness with other men's brains. Can this mean that the existence of another man's mind is somewhat uncertainly proved in the same way that the existence of a planet, as yet perceived by no one, is uncertainly proved from the aberrations of other heavenly bodies by a man who is not quite certain of his data? Not at all. Uncertain proofs of this kind are not to be distinguished in kind from absolute proofs. Verification is always theoretically possible, and may come at any time. The analogy to which Huxley appeals does not stand in the same class. It is impossible that we should substitute for it the absolute proof which he distinguishes from it, whatever the extension of our knowledge.

And although Clifford denies that our inference as to the existence of other minds is justified, he admits that the world has discovered a proof of its own which makes it unnecessary for him to furnish one. He does not disapprove of its having cut the knot. He accepts its conclusions, and makes of them a decidedly dogmatic use.

It is worth remarking that in neither case is the assumption of the existence of other minds frankly admitted to be a purely arbitrary and unreasonable assumption — one made for no reason at all, save that the writer chose to make it. Were it really as unreasonable as this, no one would take it seriously. The mere fact that it is made by a man of science in a work intended to be read by sane persons of mature mind, and that it is in such a work made the basis of a general scheme of things, is enough to prove that the writer felt himself justified, in some proper sense of the word, in making it.

That the assumption can be justified, and the existence of other minds *proved* with a greater or less degree of certainty is certainly the common opinion of mankind. That their existence cannot be proved in the sense in which the existence of a planet can be proved seems perfectly evident. In what sense of the word, then, can it be proved?

To answer this question one has only to turn to an examination of the sort of evidence which is always adduced for the existence of other minds. This evidence I have presented and discussed at

length in this chapter. Where it is lacking, we assert that we have no reason to infer the existence of another mind; where it is ambiguous, we admit that we are making an uncertain inference; where it is unmistakable, we affirm with confidence that another mind exists. The existence of another mind would be *absolutely proved*, in the only sense of the word in which it means anything at all to prove absolutely the existence of another mind,[1] if the evidence in question were ideally perfect. The *possibility*, the *probability*, the *certainty* of the existence of another mind, are words which have no meaning except what they gain from a reference to the evidence under discussion; and a *doubt* as to the possibility, the probability, or the certainty of the existence of another mind can only be justified by a reference to the same evidence.

This being the case, it is clear that it is a grave inconsistency for a man to refuse to recognize this evidence as furnishing a proof of existence, and to maintain that, although other minds *may* exist, we can never know it with certainty. What can it mean for him to say that other minds *may* exist? Can it mean that they *may*, conceivably, be directly perceived, as material things may be, but that it is uncertain that the evidence in hand justifies us in assuming that they really are to be put in this class? We have seen that this is absurd. We say that some material things *do* exist, and we say that some *may* exist. When we make the latter statement we mean that the sort of evidence which establishes the existence of material things is present in scant measure. But when we say that other minds *may* exist, we cannot refer to the insufficiency of evidence of this sort, for no possible degree of evidence of this sort can have any bearing upon the question. It is plain, then, that when a man says that other minds *may* exist, he falls back for the significance of his statement upon the evidence which he discredits. If he absolutely repudiates this evidence, his words mean nothing at all. And if he gives it sufficient recognition to be able to use a *may*, there is no reason at all why he should not go further and say that other minds *do* exist.

[1] I assume here and elsewhere in this chapter that consciousnesses must always remain "ejective" to each other. It is the commonly accepted position. I maintain that even on this basis we are justified in maintaining that the existence of other minds can be *proved*. In the next chapter, however, the reader will find some reflections which seem to have a good deal of significance for the doctrine of ejects.

To deny that such evidence may be called proof, is to limit the meaning of the word "proof" in an arbitrary way, and one not justified by common usage. The world of the plain man is a world of bodies and minds; he thinks that he has abundant proof of the existence of these minds, and even proof that their contents differ in certain rather definite ways. A science has been built up which endeavors to give him an accurate account of the minds in which he believes. Shall we tell him that he has really no proof of their existence, and that the whole thing may be a mistake? What sort of a mistake is a mistake that can never by any possibility, under any conceivable circumstances, be shown to be one? As well speak of an error that it is even theoretically impossible ever to distinguish from a truth.

But there are persons who are quite willing to admit the existence of other minds, who are, nevertheless, impelled by the fact that minds cannot directly inspect one another to conclude that we can never be sure "how things look to other people." I speak of the color red; something is called up by the word to my neighbor's mind. Suppose that he has always had the sensation of gray color when he has looked at an object which has given me the sensation of red color. When I speak of red color will he not think of gray, and must it not remain concealed from me that our experiences differ?

I answer: if the inference which results in the assumption of other minds is good for anything, it is good for a great deal. We do not merely assume that other minds exist. We find ourselves able to say a good deal about them. No man attributes to a horse the mind of a human being; and if it is possible to go as far as this without error, it is theoretically possible to travel to the end of the road.

That men may differ in their perceptions of color has already been discovered, and much has been written touching the phenomena of color-blindness. It is quite true that our knowledge of other minds is as yet highly incomplete. It is also true that in attempting to describe them we may fall into error. But if we declare such error to be beyond the possibility of correction, we lay the axe to the root of the whole argument for other minds. Our ignorance of the contents of other minds must not vaguely be attributed to the fact that they are other minds. It can be accounted for in detail. It has its foundation in our ignorance of

our own minds and bodies. Were my knowledge of my own mind and body ideally complete, were the point-for-point correspondence between mind and brain fully made out in a single instance, there could be no possible doubt as to the precise contents of the mind revealed by another brain. But I cannot attain to such a knowledge of other minds unless I know a vast deal about my own mind, my own brain, and the brain of the man in whose mind I am interested. To claim that we actually enjoy such a knowledge at present would be to betray either an unpardonable ignorance of the facts or a boundless conceit.

Our inferences as to the contents of other minds must, hence, be somewhat vague and loose. We must admit that a man may look sad and yet not feel sad, may suffer and yet not show it. But we may admit this frankly, and yet maintain that it is absurd to say that another man may be suffering, and while he is suffering there may be no trace of his feelings in any part of his body. The droop at the corners of a mouth may be all that we have to go upon, the sole outward and visible sign within our field of view. If we have no more, we speak with hesitation, for facial expression is somewhat remotely connected with mental phenomena, and experience has taught us that this sign may be contradicted by others. It is always problematic whether the widow's veil does or does not cover a broken heart. But to assume that the particular cerebral disturbance which is the concomitant of a pain in the one instance may really be the concomitant of a pleasure in another is to deny altogether the argument from analogy which leads us to infer the existence of other minds. If the voice can be the voice of Jacob, while the hands are in this fashion the hands of Esau, why not assume these unperceived hands to be something quite other than hands, or, perhaps, to be nothing at all?

It appears, thus, that the plain man and the psychologist are justified in accepting the scheme of things which seems to be revealed to them — an external world and a realm of minds which are related to each other through bodies which form a part of the external world. What is meant by the external world, what is implied by the words "my mind," how we are to conceive of minds as related to bodies, what we mean by "another mind," and how we come to assume that other minds exist — all this I have tried to make plain in this and in the preceding chapters. To the plain man it is not particularly plain; and the psychologist, whatever

else he may do, usually gives us little assistance in the analysis of those conceptions with which the metaphysician must occupy himself. But I am inclined to maintain that in what I have said I have not wandered far from what really is implicit in common thought. In analyzing, I have not denied the justice of the distinctions which men have drawn; the results are the less startling, and, I believe, the more worthy of confidence.

There is one more matter upon which I should touch before bringing this chapter to an end. It is generally believed that we all gaze upon the *same* external world. Each man possesses his own mental life as no one else possesses it, but the external world is a common possession. This was inconsistently recognized by Mill when he said: "the Possibilities of Sensation which are called outward objects, are possibilities of it to other beings as well as to me." But what can it mean to speak of the external world as a *common possession?* Can it mean that something in one consciousness is identical with something in another?

Another man and I are at the same time looking at a tree. He is near the tree, and I am far from it. He is conscious of the tree as large and green; I am conscious of it as small and blue. Is anything more of the tree actually "given" to him than is given in the expanse of green? and is anything more actually "given" to me than this speck of blue color? The percept is, to be sure, always more than what is given in the sense; and to identify the thing as a tree, both he and I must supplement what is given in the sense by materials drawn from the storehouse of memory and imagination. I cannot, however, draw upon his stores, nor can he upon mine. His sensations are his sensations, and they appear to differ in important particulars from those of which I am conscious. His percept as a whole — and is this not the only tree within his reach? — must be declared a distinct thing from my percept. What, then, have we in common? Not the sensation, for his sensations and mine may be very different; not the representative elements in the percept, for what exists in his imagination cannot be identical with what exists in mine. And nothing appears to be "present" to either of us, that does not fall under the one or the other of these two heads. How, then, can we both perceive the *same* tree?

The fallacy which lurks in such reasonings as these ought not to be difficult of detection to those who have read with compre-

hension what has been said in the preceding pages. It consists in basing the statement of a problem upon the recognition of certain distinctions, and then, by the obliteration of these same distinctions, rendering the solution of the problem impossible. If I begin by saying that another man and I are at the same time looking at a tree, I have no right to deny the distinctions that make this statement a significant one. Either one has a right to make it, or one has not. If one has not, there is no problem. If one has, one must not lose sight of the fact that one mind has been distinguished from another, and both minds from an external world. Such being the case, it is manifestly inconsistent to put the external world into either mind, and it is a palpable absurdity to put the *same* external world into both. If the two minds are really two, — are mutually exclusive, — what is a part of one cannot be identical with what is a part of the other. To say that it is in some sense the same, although in two minds, is to take refuge in an ambiguous word, and to rest content with that.

We have seen that reflective thought recognizes the justice of distinguishing between the mind and the world, and between one mind and another. My mind is to be distinguished from the external world. No one of my percepts is to be confounded with any object in the external world. As *my percept* it has its place in the subjective order, not in the objective. To symbolize this, I grant my body a "halo," after the fashion of the parallelist, and I call this *my consciousness*. I must never forget that my consciousness, as my consciousness, simply disappears, if the objective order be wholly abstracted from.

Following the golden rule, I treat my neighbor to a halo, *i.e.* I treat him as I treat myself. But to what is the halo affixed? to a body in the objective order; in the same objective order which contains my body. No one of my neighbor's percepts is to be identified with any one of my percepts. Such an identification means an obliteration of the whole construction; my neighbor's percept would not be his percept, my percept would not be my percept, the external object would not be the external object.

It should be borne in mind that it is not one and the same thing to say "the external world," and to say "the external world as revealed to me." The words *to me* indicate clearly that, in making use of the latter expression, one is referring a given experience to the subjective order, not to the objective. It is easy to forget this,

to say, all I can know of the world is the world as it is revealed in my consciousness — and having said this, to conclude that the world can only be known as *percept*. The error has, as I have pointed out, a relative justification in the fact that an experience that can take its place in the objective order can also, under appropriate circumstances, be relegated to the subjective order, though not, of course, without losing its character as objective. But when it is clearly seen that, if no world can be known as not-percept, no world can be known *as percept*, the pitfall should be avoided.

But the world that is known as *not-percept* is neither *my* world, nor the world of my neighbor. It cannot be put into my halo; the halos are many, it is one. It is not the world as it exists in my consciousness, nor is it the world as it exists in the consciousness of any one else. But how, then, can we even speak of it? Can a man talk about a world which is not the world revealed to him, the world in his consciousness?

He who raises this question has taken the parallelistic figure too literally. I have pointed out in the chapter on "The Distinction between the Mind and the World" that an objective order is revealed as well as a subjective. By the words "my consciousness" I sum up the phenomena of the subjective order. But it is absurd to allow the use of this name to mislead me into ignoring the objective order.

Am I, then, to say: I can be conscious of what is not in my consciousness? The expression is undoubtedly an unhappy one. Perhaps I can best answer the question by saying: If, by the expression "my consciousness" I mean no more than my halo, and if for me to be conscious of this and that means no more than to have this and that in my halo, then I can certainly never be conscious of anything that is not in my consciousness. But if I thus limit the meaning of the verb "to be conscious," what word shall I employ to indicate the recognition of the external world, of the objective order? It has quite as good a right to recognition as the subjective, and recognize it I must, if I will retain possession even of the subjective. Is it not better to recognize that the word "consciousness" may be used in a broader and in a narrower sense? May I not say that, in one sense, I am conscious of nothing that is not a part of my consciousness, but that, in another, I am conscious of external things as well, and, indeed, *as immediately?*

CHAPTER XXVIII

THE DISTRIBUTION OF MINDS

In many instances it seems so natural to assume the existence of other minds, and the general nature of such minds seems so clearly indicated, that reflection makes no pause to consider the process of inference, and no doubts or questionings are brought to the birth. Between my neighbor's body and my own, and between his actions and my own, there is a close analogy. As I converse with him the thoughts in his mind rise up before me through no conscious effort of my own. I am filled with admiration of his eloquence, impressed with the lucidity and systematic arrangement of his ideas, inspired by the loftiness of his sentiments. That he has a mind, and that it is a mind of a high order, it does not occur to me to doubt.

But when I am led by the psychologist to reflect upon the subject of minds and their contents, and upon the difficulties which attend the determination of the exact contents of minds, I am brought to admit that some questions may reasonably be asked even in such a case. May I assume from the warmth of my neighbor's expressions that he is really conscious of such a suffusion of feeling as I would be conscious of were I speaking thus? Do his words always mean to him just what they mean to me? I must know my neighbor rather intimately before I can be even moderately sure that I am not assuming in him a likeness to myself that is not justified by fact. That, in general, men may mean one thing and be understood to mean another, no man can deny — least of all the student of philosophy who has watched the sympathetic commentator inflating his chosen author with a wind of doctrine not his own. If my neighbor and I are closely alike, and if I know my neighbor intimately, it seems easy for me to understand him. But no two men are exactly alike, and there is always room for some misconception.

And the greater the difference, the greater the danger of mis-

conception. It is rather difficult for a man to comprehend the workings of the mind of a woman; it is not easy for an adult to realize how bare of content may be the mind of a child; try as he will, the finished product of an elaborate civilization must enter very imperfectly into the pains and pleasures, the interests and ideals, the hopes and fears, of the Australian savage. He who would distribute "halos" to all sorts and conditions of men should often, in justice to himself, stand prepared to discard the uncompromising and clearly outlined gold plate of a Fra Angelico, and content himself with the modest and faintly indicated touches of light that adorn the canvases of a Titian.

If there is this uncertainty in the inference to other minds, when we are dealing with our fellows, what are we to expect when we come to give an account of minds of a lower order? No one doubts that there are such minds. The philosophic theory that darkened the eyes of the Cartesian, leading him to deny the existence of consciousness in any creature below man, no longer obscures for us the significance of an analogy too striking to escape the notice of any man not under the influence of strong prepossession. A creaking door and a yelping dog are evidently not to be brought under the same category. Some sort of a mind we must allow the dog, but what sort? The animal psychology at present growing up occupies a legitimate field of human inquiry, but those most familiar with its results are more conscious than other men of the pitfalls which cover the ground, and are much more distrustful of the anecdotes illustrative of the intelligence of the brute creation which pass current among the unscientific.

Yet, although we are upon uncertain ground when we attempt to describe the psychic life of such animals as the ape, the dog, the cat, or the horse, it does not seem absurd for us to try, at least, to give some indication of its nature. These creatures do not resemble man closely, but they do resemble him unmistakably in some particulars. With each remove, however, our difficulties thicken. The horrified tourist who wanders into a Cuban market and sees a businesslike Chinaman unpack a row of live turtles as though they were so many valises, and poke about among their entrails to exhibit the fat there embedded, cannot help asking himself whether the turtles object seriously to martyrdom. To all outward appearance, they are less discomposed than the onlooker. It is a brave man who will undertake to paint the

emotions of such a being, or to tell us what the world means to an ant, a fly, a cuttlefish, or an earthworm. Yet, that all these enjoy a psychic life of some sort, we feel impelled to admit. We grant them minds by the same analogy, although in a weakened form, by which we grant minds to other men. And if we may grant minds to these, can we deny something of the kind to the amœba, that little jellylike speck which stands, it is true, very far removed from the brutes with which we began our descent, and yet is to be found in the same series with them?

Nor is it by any means self-evident that we may not go farther than this. The analogy between plant life and animal life has so impressed many thoughtful men that they have felt impelled to conclude that the distribution of minds or of something like minds cannot be limited to the animal kingdom. The poetic fancy of a Fechner[1] can scarcely be regarded as a sober guide to truth; but the analogies which impressed Fechner have given rise to questionings in minds much less impressionable. Who can draw a definite line through nature, and say, on the one side of this we have unmistakable evidence of the revelation of minds, and on the other such evidence is wholly absent? Shall we draw the line below the plant? There is the crystal, which inhabits a debatable land, as it were, between the living and the dead. And who can *prove* a total absence of consciousness even in the realm of amorphous matter?

It will be observed that, when we begin with man and descend gradually along the scale of beings, we seem, in the upper part of the series, to be in doubt, not whether or not there are minds, but rather what sort of minds are revealed. Toward the bottom of the series we ask ourselves in much perplexity whether anything like mind is revealed at all.

It is natural that this should be so. There is but one argument for other minds, and that is the argument from analogy discussed in the preceding chapter. Where the analogy is a close one, our conclusion is unhesitating; as it grows more remote, we waver, and dwell in uncertainty. As we have seen, even in the case of man our knowledge of the relation of mind and body is far from satisfactory, and yet this knowledge is to serve as a basis for all our inferences.

It is said that drowning men will clutch at straws, and it is

[1] "Nanna, oder über das Seelenleben der Pflanzen."

certainly true that men who feel their ignorance to be galling will fill the gaps in their knowledge with the most unsubstantial of speculative fabrics. Upon the ambiguous adage that nature makes no leap is built the fanciful doctrine that every material atom is accompanied by an atom of mind-stuff, and thus it is proved that every part of nature is animated. I shall have occasion to discuss this doctrine later, and need not dwell upon it here. Suffice it to say that it is one of those short cuts to knowledge that should be plainly marked with the sign — Danger ! We have no whit of evidence to prove that there is any such concomitance of mental phenomena and material phenomena as is here postulated. For all we know to the contrary, the simplest manifestation of mind may demand as its concomitant a highly complex material fact, and such complex material facts may not be found so very widely distributed in the realm of nature.[1] Pleasing as may be such bold speculations as the one referred to, there is one thing that ought to be even more pleasing to the serious mind, and that is *sober truth.* Here the sober truth is, that within a limited sphere we have rather definite and reasonably assured knowledge; beyond that sphere our knowledge grows gradually more uncertain and more indefinite, until it fades out into complete ignorance. We may, if we choose, hazard a guess at what lies in the darkness about us, but it is not wise to assume that our guesses are something more than they really are.

But to return to man. We have, in previous chapters, referred his mind to his brain, and not to his body as a whole. The brain of man is, however, enormously complex, and is almost unexplored territory. It is quite possible that a relatively small part of it is to be made concomitant with his "halo" — with the consciousness to which we commonly refer when we speak of the mind of this man or of that. Are we to deny halos to all other parts? Are we to assume that there is no consciousness at all connected with the functioning of such parts? Are we to overlook the lower nervous centres in man, and to grant the whole man but the one halo? This could easily be done by a Cartesian. To him, between the soul, the full-fledged responsible soul seated in the pineal gland, and bare mechanism without any consciousness whatever there is no halfway house. Either a creature has

[1] I shall ask the reader, in judging this statement, to take into consideration what is said in Chapters XXXII to XXXV.

a soul, a thinking, feeling, willing soul, the traditional soul with all its traditional properties, or it has nothing; if it is not as good as human, it is a creaking door, a beaten drum, a responsive mechanism that has no "inside" to which we need pay attention.

There is no danger at the present day of our denying to the lower animals minds of some sort. A frog acts as if it had intelligence, and we ascribe to it intelligence. There are, however, persons to whom the problem seems to take on a new aspect when it is a question, not of a whole animal, but of a part of such. A frog is a creature that may be decapitated without ceasing to live, and a decapitated frog furnishes the physiologist and the psychologist with much food for reflection.

The physiologist cuts off a frog's cerebral hemispheres by a section between them and the optic thalami, and at first sight the animal appears to be in a state but little different from that in which he was before. He can breathe, swallow, crawl, jump, swim, and guide himself by the sense of sight in avoiding obstacles placed between him and the light. More careful observation shows that he has lost some of his spontaneity; he seems to be a simpler and a more calculable thing than he was. He does not show fear, and he is not stimulated by hunger to feed himself. Nevertheless, it would not occur to any one not prepossessed in favor of some theory touching mind and brain, to deny him a mind of some sort. His intellectual horizon seems to be limited; remote considerations of all sorts are beyond him; but he acts as though he had purposes and adapted his movements to the attainment of, at least, immediate ends.

If the cut be between the thalami and the optic lobes, the activities of the animal are further restricted, but such activities as jumping and swimming appear to be quite normal, and the creature croaks regularly when pinched in certain ways. If the cut be made in such a way as to leave only the cerebellum and the medulla oblongata attached to the spinal cord, locomotion by land and by water becomes somewhat imperfect, but the frog still appears to prefer having his body in one position to having it in another, and turns over when placed upon his back.

Now, if we go one step farther, and rid a frog of his whole brain, including the medulla, we have left on our hands a very poor sort of a frog indeed. The creature is not dead, but he does not breathe, swallow, or sit erect. If placed on his back, he stays

there. He cannot jump or swim or croak. Can we still say that he has *preferences?* Shall we attribute to this remnant of a frog anything of the nature of mind? Let us try the classical experiment of hanging him up by the nose and laying a bit of paper wet with acid upon his skin. He makes what seem to be purposive efforts to reach the spot irritated, and to wipe away the irritant. Failing to do it with one foot, he may try to do it with another, thus apparently recognizing the inadequacy of one method of dealing with this situation and abandoning it for a new method. Are we to deny that there is *any* analogy between the actions of such a frog and the actions of a normal frog or those of a man? The mutilated frog certainly acts as though he *meant* to do something. A disinterested spectator not prepossessed in favor of some theory as to the soul's seat naturally concludes that he does mean to do something.

To be sure, the less of a nervous system we leave a frog, the less do we recognize in its actions what we are accustomed to call spontaneity, and the more are we struck by their regularity and precision. We feel inclined to compare them with the functioning of the mechanisms constructed by man. One may even elevate this difference to the rank of an absolute difference of *kind*, and maintain that the mutilated frog is a machine merely, and is, hence, unconscious; while the normal frog is not a pure machine at all, but is a machine ruled by a consciousness.

But if the reasonings contained in a previous chapter[1] have any weight, there is no good reason to believe that the most active and spontaneous of frogs is to be regarded as other than a mechanism, nor are we justified in assuming that the recognition of this creature or that as a mechanism is any reason for believing that the creature in question has not a mind. Moreover, one must remember that the normal frog and the frog with but a spinal cord are not separated by an unfilled interval. We may descend along our series of sections somewhat as we descend along the animal scale from higher to lower. We find less and less evidence of intelligence, less spontaneity and variety of action, less extended a horizon. But our differences seem to be throughout differences in degree rather than in kind.

It does not, then, appear to be absurd to speak of the consciousness connected with this or that lower nervous centre in the

[1] Chapter XV.

frog. The possible number of such consciousnesses, the question whether they may exist simultaneously, and other matters of the sort, are legitimate subjects for investigation. It can readily be seen that a new complication has entered into the question of the distribution of halos. One feels strongly inclined to envy the Cartesian the simplicity of his solution.

Now, a man may not be treated like a frog. If we decapitate him, he will die, and all evidence of mind will disappear. Nevertheless, the inadequacy of the Cartesian psychology has been made apparent even in the case of human beings. This is not the place to enter at length into a description of phenomena the details of which concern rather the physiologist and the psychologist than the metaphysician, but it is plain that the metaphysician has no right to discuss the distribution of minds without taking into consideration the conclusions at which the physiologist and the psychologist seem forced to arrive.

The physiologist sometimes speaks of a rudimentary consciousness connected with various lower centres in man — with the spinal cord, or with the medulla, or with the basal ganglia in the brain. The facts which he can marshal are not so abundant or so unambiguous as those which he finds at hand when he is experimenting upon the frog, and in the assumption of the existence of such rudimentary consciousnesses we may or may not feel willing to follow him. But even if we refuse to follow him in this, we are not on that account justified in concluding that, under all circumstances, but one consciousness may be granted to one man.

The cortex of the brain, to which in the present state of our knowledge we seem justified in referring *the* consciousness of a man, — the consciousness which we habitually regard as the mind of the man, and of which we are thinking when we describe his character, — may, as we have abundant evidence to prove, be the seat of other consciousnesses as well. Volumes have been written upon the phenomena of dual or even multiplex consciousness, and the facts are too numerous and too well established to be met by a general scepticism. Of the truth of some of them, at least, any one may convince himself by a few experiments upon a good hypnotic subject. It may be experimentally demonstrated that a consciousness may be divided, and that its parts may become foreign to each other, as the normal consciousness of one person

is foreign to that of another person. Says Professor James, after an excellent summary of such facts: "It must be admitted, therefore, that, *in certain persons*, at least, *the total possible consciousness may be split into parts which coexist but mutually ignore each other*, and share the objects of knowledge between them."[1] Which means that there may be two consciousnesses connected with one brain.

It appears, then, that we cannot feel that we have done justice to the subject when we have diagrammatically represented to ourselves one halo as related to one organism. *Sometimes we have palpable evidence of the existence of more than one halo at the one time; sometimes there seems to be an alternation of halos; sometimes two halos appear to join and form but one.* The old Cartesian notion of the mind and its relation to the body will no longer serve. "The absolute unity of the ego," writes Janet, "is a metaphysical conclusion, which is true, perhaps, but which ought to be arrived at as an inference from the facts, and ought not to impose itself upon the facts. There is no proof of the consciousness of an animal save the intelligent adaptation of its movements. We must discover whether this intelligent adaptation reveals to us in the animal one or two or three consciousnesses, and only then must we draw our conclusion as to the unity or the division of the ego."[2] These words Professor Janet has written out of a very full knowledge at first hand of the class of facts upon which I have commented above. Certainly no one unacquainted with these facts is in a position to give an intelligent opinion upon the subject of consciousness and its unity.

Here the question naturally arises: Does all this mean that we are to repudiate the sort of reasoning that led Descartes to refer the mind to the brain, and thus to lay the foundations of the science of cerebral psychology? I answer: Not at all. It means simply that reasonings of much the same sort are to be carried out more carefully, that facts to which scant justice was done before are to be brought into more careful consideration, that metaphysical hypotheses inherited from the past are to be prevented from having an undue influence upon our conclusions. If we are led by certain phenomena which present themselves to infer that two consciousnesses are to be referred to one brain, we

[1] "Psychology," Vol. I, p. 206.

[2] "L'Automatisme Psychologique," Paris, 1889, p. 26.

are following much the same chain of argument as when we infer that one consciousness is to be referred to one brain. In each case we know, at least vaguely, what we mean by a consciousness, and the problem of localization is the same problem in every case.

It should be remarked that the fact that more than one consciousness, or perhaps I should say here more than one personality, may under some circumstances be revealed by one organism, is not a discovery of modern science. From the earliest times it had been recognized with superstitious awe that the normal personality of a man may be dethroned, and its place usurped by another. The Pythia was not supposed to speak of her own motion and to utter her own thoughts. The phenomena interpreted as indicating demoniac possession had frozen the blood of many generations of men and had given rise to cruel exorcisms. The Protean forms of the trance state, loss of memory due to disease, — in short, many things that are to the modern psychologist of the highest significance, — were generally recognized long before modern psychology had its birth.[1] It is impossible to suppose that Descartes had not within his reach sufficient material to give him good cause to modify his psychological doctrine, had he been capable of seeing the significance of the material. But the time was not ripe for a complete recasting of old conceptions, and the meaning of the facts was not grasped.

The possibility of a coalescence of the consciousnesses referred to one brain suggests a further possibility which many will contemplate as startling. "When I come to the conclusion that *you* are conscious," says Clifford, "and that there are objects in your consciousness similar to those in mine, I am not inferring any actual or possible feelings of my own, but *your* feelings, which are not, and cannot by any possibility become, objects in my consciousness." Upon this passage Professor Pearson comments as follows : —

"To this it may be replied, that, were our physiological knowledge and surgical manipulation sufficiently complete, it is conceivable that it would be possible for me to be conscious of your

[1] See Spinoza's reflections upon a case of loss of memory. He refuses to regard the subject as the same man after his misfortune. The discussion is of especial interest as coming from the pen of one who so early saw the inadequacy of the Cartesian doctrine. — "Ethics," iv, 39, scholium.

feelings, to recognize your consciousness as a direct sense-impression; let us say, for example, by connecting the *cortex* of your brain with that of mine through a suitable commissure of nerve-substance. The possibility of this physical verification of other-consciousness does not seem more remote than that of a journey to a fixed star. . . . Clifford has given the name *eject* to existences which, like other-consciousness, are only inferred, and the name is a convenient one. At the same time it seems to me doubtful whether the distinction between *object* (what might possibly come to my consciousness as a direct sense-impression) and *eject* is so marked as he would have us to believe. The complicated physical motions of another person's brain, it is admitted, might possibly be objective realities to me; but, on the other hand, might not the hypothetical brain commissure render me just as certain of the workings of another person's consciousness as I am of my own?"[1]

It must be admitted that this question is at present one of theoretic interest only, for we have as yet no single fact to indicate that two brains may be made such a physiological unit as to become the seat of a single consciousness. Nevertheless, the fact that a consciousness "may be split into parts which coexist, but mutually ignore each other," and the further fact that these parts may reunite to form one consciousness, makes the above suggestion one that we cannot dismiss as absurd. In making it, Professor Pearson does not appear to have had in mind the phenomenon above alluded to as furnishing its plausibility to the speculation. He refers only to the disputed phenomena of "thought-transference," which, even if we accept them as genuine, are susceptible of more than one interpretation. But well-attested facts with a significance less dubious do exist, and it is worth our while to pause for reflection upon them.

I must recognize the fact that my consciousness is both *extensive* and *protensive*. I am conscious of an indefinite number of mental phenomena simultaneously. It would scarcely seem worth while to insist upon what appears so self-evident, were it not that the fact has been denied by psychologists of standing. The doctrine that the total consciousness of any moment is an unanalyzable unit, without parts or constitutive elements, is, however, so repugnant to our actual experience, so incompatible with the

[1] "The Grammar of Science," 2d edition, London, 1900, pp. 49–50.

possibility of psychological analysis of any sort, and so evidently a misconception arising from a prepossession in favor of a certain metaphysical theory of the unity of the ego, that it may be set aside without entering into a prolonged discussion. If I confine myself to the data furnished by one sense, and pay attention only to what seems presented when I fix my eyes upon this desk littered with papers, I cannot believe that what is in consciousness even at the moment is an absolute and undistinguishable unit. My consciousness is, thus, complex, and possesses a varied simultaneous content; this I may call its *extensive* aspect.

Again. In an earlier chapter I have argued that what is given in consciousness intuitively must be allowed some duration, if the symbolic representation of periods of time is to be truly symbolic, *i.e.* if the symbols by means of which we represent to ourselves extended periods of time are to have a true significance.[1] But when I speak of my consciousness as *protensive*, I do not mean to allow it a duration limited to the span intuitively given in consciousness. The consciousness which I recognize as my own, and the consciousness which I attribute to this man or that, I conceive to extend over a series of years, and to include an indefinite number of successive states, no one of which is to be confounded with another. This is entirely in accordance with common usage, which regards the mind of a man as something which is revealed by his body as long as the body lasts; or, in any case, as long as it is not smothered in its tenement by the slow paralysis of age or driven from it by the onslaughts of disease. By the mind of a man no one means a mere pulse of experience, and it does not occur to us to attribute to man a succession of minds which are born and die as the shadow moves upon the dial. Whatever we may mean by the unity of consciousness, we recognize it as embracing a series of successive states, as well as a more or less complex group of coexistent elements. Consciousness may be *protensive* as well as *extensive*.

Now, it will be generally admitted that I am immediately conscious of the sensations which present themselves to me at the present moment. It will also be admitted that I am immediately conscious of various representative elements *as representative elements*. It may be maintained, however, that I can be conscious of these latter immediately only because they have a present exist-

[1] See Chapter XIII.

ence, and that I cannot be immediately conscious of mental experiences which I had ten years ago, or even ten minutes ago. Are not these gone, never to return? Can one experience a non-existent experience? How, then, can past experiences be said to belong to consciousness? How can they form a part of the one whole with experiences which now exist?

In answer to this I will say that it is aside from our purpose just here to enter into an exhaustive examination of the meaning of the phrase "immediate knowledge." I have no desire to obliterate any distinctions which may be of use to the psychologist, or, for other purposes, to the metaphysician; but we are concerned with the distinction of object and eject, and it appears sufficient to remark that my mental experiences of ten years ago, which I recall in an act of memory, are not related to any sensations which I may be experiencing at the present moment in a way at all analogous to that in which another man's experiences are related to mine. My own past forms one whole with my present, at least in a sense in which another man's past does not. I do not *infer* that I experienced such and such sensations; I *remember* it. My past is presented to me as immediately as it is possible for a past to be presented. That another man has had a given experience at a given time I cannot know in this way, but I must discover the fact as result of an argument of the sort to which we always have recourse when we concern ourselves with the contents of other minds. This has been recognized by those who have dwelt upon the distinction between object and eject. Clifford, for example, classes as objects for me, not merely the feelings which go to make up my consciousness of the moment, but also all past and all future feelings which belong to the one series in the sense upon which I have dwelt above, and he contrasts this series as a whole with those other series which he recognizes as other minds.

The whole series of phenomena thus recognized as objective, as known, not by inference, but directly, I refer to my body in the way indicated in Chapters XXIII and XXIV, and I diagrammatically represent them as the one "halo." It is important to realize that this means and must mean that I know these phenomena, not merely objectively, but also in another way. I know them in their relation to an external world; I know their physical signs. It may be said, thus, that, for the phenomena of my own

mind, I have both objective and ejective evidence. Did I not have such evidence, were I not conscious of my own mental experiences, so to speak, from both sides, the argument for other minds would utterly lapse. I should have no ground whatever upon which to take my stand while drawing my inference. Yesterday I suffered from the toothache. I can remember it directly. I can also remember my bodily reaction, my complaints and wry faces, the advice of solicitous friends, my visit to the dentist. These last constitute what I may call my toothache as grasped "from the physical side." They are ejective evidence of its existence. For the consciousness of another man I have no other evidence than this; I perceive physical signs, and I infer the existence of psychic phenomena.

And if any part of the consciousness that I call mine has become detached from the rest, it is for the time being in the same case — my evidence for its existence is purely ejective. I take up a paper which I wrote many years since, and I follow with curiosity the course of what was once my thought. It may be that I have forgotten ever having written the paper, and have so completely forgotten the train of thought indicated in it that even a perusal fails to awaken my dormant memories. In such a case it is clear that I have but one sort of evidence to prove that the thoughts in question really existed at the time indicated — the sort of evidence that persuades me to believe that other men are conscious or have been conscious. Much that we have thought and felt during the first years of our lives can be known to us only on such evidence. The tale told by the nurse or by the mother is accepted, though it awakens no memory. On the other hand, a tale that is heard may after a time drag back to life memories which seemed hopelessly lost. The man who has quite forgotten his heedless promise may, as a result of pondering upon the matter, come to remember what he has forgotten. That is to say, objective evidence may appear and corroborate evidence merely ejective. What was cut off from a consciousness may come to be joined to it again.

Now, we are not in the habit of making a separate halo of every bit of consciousness which we have lost. In other words, we do not think of it as being a different mind, or even anything like a different mind. It seems clear, however, that if we fail to see here a significant analogy, it is because we have not sufficiently

reflected. But even the unreflective must be impressed by the more striking phenomena which may be produced experimentally in hypnotic subjects, or which present themselves spontaneously, to the consternation of the family and friends of the unhappy victims of certain nervous diseases. A consciousness may be divided in time in such a way that whole sections of a life may be cut off and become purely ejective to the rest; a consciousness may also be divided in such a way that we are bound to refer to the one organism coexistent personalities, each of which is ejective to the other. The division may be, so to speak, either transverse or longitudinal. And we may have indubitable evidence of the subsequent coalescence of these separate consciousnesses to form one mind again.

I have said above that we have no single fact to prove that two different brains may become such a functional unit that the minds referred to them may coalesce to form a single consciousness. The question has but a speculative interest. Nevertheless, the fact remains that what was purely ejective to a given consciousness may, under certain conditions, become objectively known, may become a part of it; and in the present state of our knowledge (or of our ignorance) we should admit that it does not seem absurd to speak of the theoretic possibility of the coalescence of the consciousnesses of two different men.

Our consciousness consists of a very large number of successive states, and its content at any moment is highly complex. It is the mark of this great collection of psychic elements that each part of it is known both objectively and ejectively; that is, that it is known directly, and known in relation to its physical signs. How extended may be the consciousness known in this twofold way it is impossible to determine *a priori*, and it is equally impossible to say to how large a portion of the physical world such a consciousness may be related as we relate mind and brain. The question is simply a question of fact.

As things stand, we have no reason to relate in this way one consciousness to more than one organism, and we must accept the fact that the innumerable consciousnesses which we believe to exist in connection with the bodies of other men and of the brutes are certified to us only on ejective evidence. So far as we know, we shall never attain to any proof of their existence different in kind from that which we possess now. Yet the mere fact that, even in

a single instance, what has been pure eject may come to be known also as object, is not without its significance for the whole doctrine of eject and object. It is one thing to say: we have only ejective evidence for the existence of other men's minds; and it is another thing to say that it is inconceivable that we ever should have any other evidence of the existence of what we now call other men's minds. We seem to find in the above reflections an added reason for repudiating the statement that our belief in the existence of other men's minds cannot be theoretically justified.

Does this obliterate the distinction between object and eject? Not in the least. For another mind, so long as it remains another mind, we can never have anything but ejective evidence — there is but one argument for other minds. Should any other mind or fragment of mind become one with ours, we should know it, as we now know our own mind, in a twofold way. We should know it directly, and not merely through its physical signs.

It is important not to misunderstand this statement. When I maintain that it is not inconceivable that we may come to know directly what is now to us another mind, and is known only as eject, I do not mean that the mind in question may come to be perceived as an atom may, perhaps, come to be perceived. To be perceived thus it would have to be a material thing. I mean to maintain only that it may come to be known as my mind is now known, that it may form one consciousness with the latter. This explanation is not wholly unnecessary, for the words "object" and "objective" may easily be misleading. In saying that I may conceivably come to have objective knowledge of another mind, or rather, of what was another mind, I can only mean that I may come to know the phenomena in question as I know mental experiences, once forgotten — lost, cut off from my consciousness — but which have been restored to me. Such experiences I do not perceive, and I do not expect to perceive, as I perceive another man's body. If I choose to say that I know them as object, I must bear in mind that this does not mean that I know them as *external* object. Similarly, any mind that I may come to know directly will not be known as external object. Could it be thus known, it would not be mind. When contrasted with "eject" and "ejective," the words "object" and "objective" are given a special sense, as the reader has, no doubt, remarked.

CHAPTER XXIX

THE UNITY OF CONSCIOUSNESS

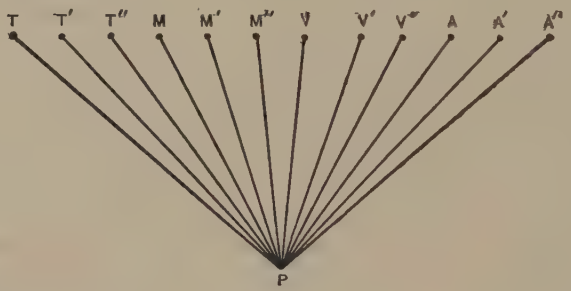
Such reflections as are contained in the preceding pages give a peculiar insistence to the question: What, after all, do we mean by *one consciousness?* How are we to conceive the difference between two consciousnesses, "sharing the objects of knowledge between them," and a single consciousness? The psychologist unhesitatingly draws the distinction. We may diagrammatically symbolize the difference by representing it as the difference between two halos and one. But what is it that leads us to call a certain number of psychic phenomena *a* consciousness, and to ascribe to them a certain unity?

Perhaps the best way for me to approach this question is to show how the problem of the unity of consciousness has presented itself to an acute psychologist whose studies have forced it into a position of peculiar prominence. After a careful examination of the phenomena of catalepsy, where the consciousness of the individual appears to be reduced to a single sensation or a very limited group of such; of the phenomena of the somnambulistic states, with which we are all familiar as illustrated in hypnotic subjects; and of the curious curtailings of the normal consciousness in certain hysterical patients, who may lose out of their lives various groups of sensations or the memory of whole weeks, months, or years, — M. Janet, whose admirable work on "Psychological Automatism" I have cited in the preceding chapter, feels impelled to conceive of the phenomena of consciousness and of their unity as is indicated in the following extract: —

"The phenomenon produced in our consciousness when an impression has been made on our senses and which is betrayed by the phrases: 'I see a light; I feel a prick,' is already a very complex phenomenon. It is not constituted by the mere brute sensation alone; but it includes in addition an operation of active synthesis, present at every moment, which connects this sensation

with the group of images and of anterior judgments which constitute the *ego* or the personality. The apparently simple fact which is expressed by the words 'I see; I hear,' is, even if we leave out of account the ideas of externality, distance, and localization, already a complex perception. I have insisted upon this idea before, when studying automatic acts performed in the cataleptic state. I there adopted the opinion of Maine de Biran, who distinguishes in the human mind a purely affective life of mere sensations, phenomena conscious but not attributed to a personality, and a perceptive life of sensations united, systematized, and attached to a personality.

"We may, while attaching to the figure only a purely symbolic value, represent to ourselves our conscious perception as a double process; as including: (1) the simultaneous existence of a certain number of conscious sensations, tactual ($T\ T'\ T''$), muscular ($M\ M'\ M''$), visual ($V\ V'\ V''$), and auditory ($A\ A'\ A''$).



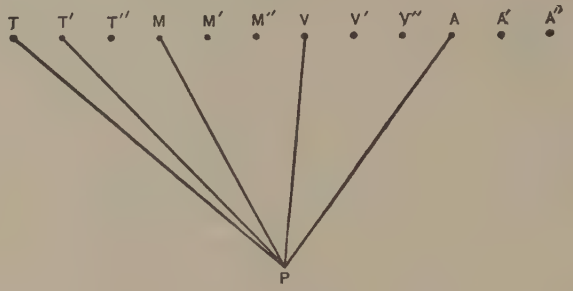
These sensations exist simultaneously and in a state of isolation from each other, like a number of little lights which might be lit in all the corners of a dark hall. These primitive conscious phenomena may, anterior to perception, be of different kinds — sensations, memories, images, — and may have different sources. Some may come from an actual impression made upon the senses; others may be introduced by the automatic play of association in the wake of other phenomena. But, not to complicate a problem already too complex, let us consider at first only the simplest case, and let us suppose all those elementary phenomena to be simple sensations produced by an external modification of the organs of sense.

"(2) An operation of active and actual synthesis by which these sensations connect themselves with one another, form a

group, fuse, and are lost in a unique state, to which a principal sensation gives its tone, but which probably does not wholly resemble any one of its constituent elements. This new phenomenon is the perception *P*. Since this perception comes into being at every instant, as a consequence of each new group, and since it contains memories as well as sensations, it forms the idea that we have of our personality, and after that it can be said that some one perceives the images *T T' T''*, *M M' M''*, etc. The activity that thus synthetizes at every moment of life the different psychological phenomena, and that forms our personal perception, must not be confounded with the automatic association of ideas. The latter, as I have said before, is not an *actual* activity: it is the result of a former activity which once synthetized certain phenomena into an emotion or a unique perception, and which has left them with a tendency to reproduce themselves in the same order. The perception of which I am now speaking is the synthesis at the moment of its formation, at the moment when it unites *new* phenomena into a unity at each instant *new*.

". . . In a theoretically perfect case, which probably does not exist, all the sensations comprised in the first operation, *T T' T''*, etc., would be united in the perception *P*, and the man would be able to say 'I feel' with reference to all the phenomena which take place in him. But this is never the case, and, in the most perfectly constituted of men, there must be a mass of sensations produced by the first operation which escape the influence of the second. I do not mean sensations which escape the voluntary attention and are not comprised in what I may call the field of clear vision. I mean sensations which are absolutely unattached to the personality and of which the ego does not recognize that it is conscious, because, as a matter of fact, it does not contain them. In order to represent this to ourselves, let us suppose that, while the first operation remains the same, the second operation is modified. The power of synthesis can exercise itself, at each moment of life, on only a certain number of phenomena, on five, for example, and not on twelve. Thus out of the twelve supposed sensations, *T T' T'' M M' M''*, etc., the ego will perceive only the five, *T T' M V A*. Touching these sensations it will say, 'I have felt them; I have been conscious of them.' But if we speak to it of the other phenomena, of *T'' V' A'*, etc., which, according to our hypothesis, have also been conscious sensations,

it will answer that it does not know what we are talking about, and that it has known nothing of all that. Now, we have studied carefully a particular condition of hysterical subjects and of those

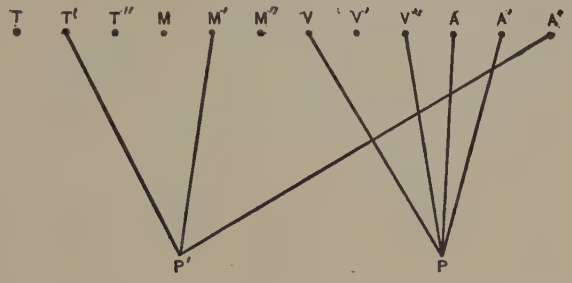


who suffer from nervous disease in general which I have called the contraction of the field of consciousness. This characteristic is produced, according to my hypothesis, by this feebleness of psychic synthesis carried further than we usually find it; a feebleness which prevents them from uniting into a single personal perception a great number of the sensory phenomena which really exist in them."[1]

These simple sensory phenomena not included in any perception, but existing each for itself, M. Janet happily describes as "mental dust." Their isolation makes them play a very insignificant rôle. Each of them carries with it a tendency to movement, but this is neutralized by their reciprocal conflicts, and especially are they held in check by the stronger group of other sensations synthetized under the form of personal perception. At the most, they are able to produce those slight tremors in the muscles, those convulsive contractions of the face, those twitchings of the fingers, which give a peculiar stamp to many hysterical subjects. But if a certain number of them come to be synthetized into a second personal perception independent of the former, the case becomes very different. We are no longer shut up to the faint and uncertain indications of subconscious (which does not mean unconscious) mind to which reference has been made above. We may have much the same evidence of the existence of a secondary personality that we have of the existence of the normal personality, and we may freely communicate with it. The two personalities divide between them the sensory phenomena, which, however, they

[1] "L'Automatisme Psychologique," pp. 305–308.

may not exhaust. We can picture the state of affairs by the aid of the accompanying diagram.



While M. Janet's subject, Lucie, is conversing in a normal way with another person, he succeeds in entering into communication with her secondary personality, and carries on a conversation in which she bears her part in writing. The writing is "automatic"; that is to say, what is taking place is unknown to the normal consciousness of Lucie. The conversation is as follows: "Do you hear me?" "No." "But one must hear in order to answer." "Yes, of course." "Then how do you do it?" "I don't know." "But there must be some one who hears me." "Yes." "Who is it?" "Some one else than Lucie." "Ah! another person. Do you want me to give her a name?" "No." "Yes, it will be more convenient." "Well, then, Adrienne." "Then, Adrienne, do you hear me?" "Yes." Here we have, connected with the one organism, the two selves, *P* and *P'*, each indubitably a consciousness, and each cut off from the other as one consciousness is always cut off from another.[1]

I have given M. Janet's doctrine in some detail, because of the admirable clearness of his exposition, and because, in his hands, it becomes an excellent instrument for rendering intelligible a multitude of phenomena to which the traditional psychology does scant justice. Its fundamental thought is not new, as M. Janet himself points out; and the reader is already familiar with the conception of psychic elements knit into unity by a synthetic activity.

I am not here concerned to defend M. Janet at all points. For example, the quantity of "mental dust" we may in a given case assume to exist is a question the psychologist must determine by the usual method of the interpretation of the physical signs of

[1] "L'Automatisme Psychologique," pp. 314 ff.

mind. He is, of course, in danger of falling into error. But making allowance for all this, there remain certain facts which appear to be unshakable. We see that a consciousness may be relatively simple or relatively complex; it may embrace few psychic elements or many. We see that groups of psychic elements may be taken from or added to a consciousness, and that, so long as they are a part of it, they share in its unity, whatever that may mean. We see that two groups of psychic elements, two consciousnesses, may be referred to the one organism; and we have seen that, under certain circumstances, such separate groups may coalesce to form but one consciousness. Thus we are impelled to distinguish between the psychic elements themselves, the content of consciousness, and the unity in which they seem to share. This distinction M. Janet brings to the surface in the two operations above described. Can the metaphysician follow him? How is he to conceive of the unity of consciousness? What can he understand by the words?

One thing appears to be very clear. We gain absolutely nothing by having recourse to the traditional "substratum" self or "unit-being," or to the super-temporal neo-Kantian activity affected by Green.[1] Is it the one self or "activity" that is to explain the unity of each of the two consciousnesses revealed by the one organism? Then how does it happen that there are two separate consciousnesses? Is it in each case a different self or "activity"? Then how does it happen that the two consciousnesses may melt into one? Do the selves or "activities" telescope? I recommend the hypothesis to the serious consideration of the disciples of Green, for no behavior is too eccentric to be attributed to the entity for which he has made himself advocate.

We have seen that M. Janet makes the self or personality to consist of a group of psychic elements. There appears to be no question of a "substratum" self. This is, so far, good psychological doctrine. But we have seen, also, that he conceives this group to be synthetized by an activity. Touching this activity he writes: "As the ancient philosophers maintained, to exist is to act and to create, and consciousness, which is in the highest degree a reality, is by that very fact an operating activity. This activity, if we seek to represent to ourselves its nature, is above

[1] See Chapter V.

all a synthetic activity which unites a greater or lesser number of given phenomena into a new phenomenon differing from its elements. This constitutes a veritable creation, for, from every possible point of view, 'multiplicity cannot of itself give birth to unity,' and the act through which heterogeneous elements are united in a new form is not given in the elements. At the moment at which, for the first time, a rudimentary creature united certain phenomena in order to make of them the vague sensation of pain, there was in the world a veritable creation. This creation is repeated for every new being which succeeds in forming a consciousness of this kind, for, properly speaking, this consciousness which has just come into being did not exist in the world before and seems to spring from nothing. Consciousness is then in itself, from the first moment of its existence, a synthetic activity." [1]

This reads, I confess, as though it had been written by one touched by the influences that moulded the thought of Green. M. Janet has, at the close of his book, abandoned the fields which he has cultivated with such signal success, for an excursion upon a strip of country over which we are all in danger of wandering somewhat at random. One is tempted to ask: Is consciousness something different from the totality of mental phenomena? And can a consciousness which is created when some creature has succeeded in uniting a multiplicity of psychic elements, be itself the cause of the synthesis which is, as it seems, the occasion of its coming into being? Is it not the creature which is creative cause rather than the consciousness? Moreover, if consciousness is, from the first moment of its existence, a synthetic activity, has M. Janet the right to regard the "mental dust" of his first operation as consisting of sensations, *conscious*, but not grouped in such a way as to form a personal perception?

However, upon such questions as these I shall not dwell. I wish, rather, to discuss a matter which seems to set the whole problem of the synthetic activity in a new light. Let us return to the above-mentioned psychic dust and consider the relation of its particles to one another.

In the last diagram given above, each of the particles of mental dust $T\,T'M\,M'V'$ is represented as being as completely cut off from every other particle and from the personal perceptions

[1] *Op. cit.*, pp. 483–484.

P and P', as are the latter from each other. But the latter are two distinct consciousnesses, and are related to each other as distinct consciousnesses are always related to each other. In discussing the doctrine of parallelism I have pointed out[1] that we are not to fall into the vulgar error of giving to a consciousness literally a position in space, as though it were a material thing; and I have shown later[2] in what sense, and in what sense alone, we may speak of the time and place of mental phenomena. To conceive of two minds as side by side each other in space, to think of them as *near* to each other or *far from* each other, because the bodies to which they are referred are separated by a lesser or a greater distance, is manifestly absurd. I may measure the distance between the two bodies, but it is nonsense to speak of measuring the distance between the two minds. Nor is it otherwise in the case in which the two minds are referred to the one organism. Lucie and Adrienne, as consciousnesses, are no nearer to each other than Lucie and M. Janet, or than the President of the United States and the Emperor of China. The words *near* and *far* have no significance in such a connection.

It is clear, then, that we must not take our diagram too seriously. It is easy for me to set down on the one bit of paper twelve dots in a row, and to say that the twelve dots represent twelve simple sensations, no one of which belongs to the same consciousness with any other. It is easy for me to draw lines connecting four of these dots with a point P and three others with a point P'. I may then say that the four connected together in the one case and the three connected together in the other represent, respectively, a consciousness consisting of four elements and a consciousness consisting of three. The dots, as I set them down, may have for me a definite significance. Whether a simple sensation may actually have an independent existence and constitute a little consciousness all by itself, or whether it may not, the conception of such an entity is in no wise an absurd one. Who can say how poor in content a consciousness may be, and yet continue to exist? And the groups of dots so connected may also have a significance. That a consciousness may be complex and may consist of a greater or less number of elements, few are tempted to deny. But how shall we conceive of the process by which three or four little consciousnesses are fused into one larger one?

[1] Chapter XX. [2] Chapter XXIV.

It may be said that we may accept the fact that there is a synthesis without feeling under obligation to describe how it is accomplished. To this I answer, we have no right to use the word "synthesis" without having some notion, if only a vague one, of what the word means as we use it. I can spread out twelve pebbles in a row, and then, by a sweep of my hand, gather together four of them. The pebbles exist side by side; they are parts of the one world; they are separated by distances which can be diminished; I can bring four of them together and leave the rest scattered as before. The word "synthesis" has here a meaning. There are the moving fingers, which are in the same world with the pebbles, and which we regard as agent; there is a change in the space relations of the pebbles, and this we regard as an effect of the activity of the agent. Nothing in the transaction is occult; nothing is incomprehensible. The pebbles were before *apart*, that is, they were separated by greater distances; they are now *together*, that is, the distances have been diminished. May we suppose that something analogous to this must take place if four little consciousnesses become one larger one? Manifestly not. The consciousnesses have not been *brought together* in any manner even remotely analogous to that in which the pebbles have been brought together. They were not at a distance from each other before; they were not scattered portions of the one world; they simply belonged to different orders. Each inhabited, or rather each constituted, a world of its own, not continuous with the world constituted by any one of the others. How shall we conceive an agent of any sort to "synthetize" such worlds into a larger world?

But, one may protest, these little consciousnesses were, at least, in some sense apart, and now they are together; may we not leave to one side the notion of their being brought together, and simply accept the contrasted facts? I answer, undoubtedly we may accept the facts, but it is of no little importance not to misapprehend them. We must dismiss from our mind, at the outset, not only all thought of a hand sweeping together a number of pebbles, but also all thought of a hand holding together a number of pebbles, which, left to themselves, would fall and scatter. We must understand the significance of the words "together" and "apart" as applied to mental phenomena. In order to do this, we must bring ourselves to a realization of how such distinctions have arisen.

"There is no doubt," writes M. Janet, "that we know psychological phenomena in other persons only indirectly, and psychology could not begin with this study; but from actions, gestures, and language, we can infer their existence, just as the chemist determines the elements of the stars by an inspection of the lines in the spectrum; the certitude attained in the one case is as good as that attained in the other."[1] "In reality," he says elsewhere, "we never know directly more than the one single consciousness — our own at the moment when we perceive it."[2]

That our acquaintance with consciousness cannot begin in a knowledge of other minds is a commonplace of psychology, and I suppose no one would care to dispute it. It should not be overlooked that this means that our knowledge of mental phenomena cannot begin with a knowledge of them as *apart*. My consciousness was complex long before I framed even vaguely the notion of an eject, and, until I framed this notion, I could not possibly conceive of mental phenomena as apart. Could I, then, conceive of mental phenomena as *together?* Yes, if the word is taken to mean only that I had a complex consciousness; no, if it is assumed to mean all that it means to the man who has contrasted objects with ejects. The man who does this sets objects as a group over against a group of another sort; as thus treated objects become *a* group; their common share in the relation we are conceiving between groups stands out as a thing to be remarked. Had I never framed the notion of an eject it is quite conceivable (theoretically) that I should have remarked the distinction between physical phenomena and mental phenomena, though, of course, I could not have conceived of physical phenomena as in any sense the common property of various minds. But it is not conceivable that I should have thought of my mind as *a* mind in the full meaning of the term as we commonly use it. It is one thing to be conscious of a multiplicity of mental phenomena, and it is another to recognize these as *a* consciousness — to think of them as *together and not apart*. The problem of the unity of consciousness could not emerge as a problem in a mind that had not arisen to the conception of an eject. It is in the distinction of object and eject, and only in this distinction, that it has its ground of existence.

Nevertheless, it may be insisted, we do now possess this distinction; we conceive of mental phenomena as together, and we

[1] *Op. cit.*, p. 5. [2] *Op. cit.*, p. 29.

conceive of them as apart ; have we not a right to ask for an explanation of their being together ? I answer, there is not a whit more sense in asking for an explanation of their being together, than there is in asking for an explanation of their being apart. Indeed, it seems more natural, when one understands the facts in the case, to ask for an explanation of their being apart. Is it an unnatural thing for consciousness to be complex ? Our first acquaintance with consciousness is with consciousness as complex ; it is only later that we build up a notion of mental phenomena as apart. Have we any reason for assuming that, in the nature of things, mental elements tend to become ejective to each other, and that they will fall apart when let alone ? The assumption of a synthetic activity to hold them together is quite as unjustified by anything in our experience as would be the assumption of a separative activity which forces mental elements into a state of isolation.

If we are to explain the possibility that mental phenomena may be objective to each other, then by all means let us show our impartiality by also explaining the possibility that mental phenomena may be ejective to each other ; and let us explain it in the same general way, by the assumption of an agent or an activity. Empedocles was consistent in assuming as a principle hate, as well as love, when he undertook to account for the separation and the union of the elements.

But, although there is no theoretic justification of the assumption of a synthetic activity to account for the fact that consciousness may be complex, it does not follow that the impulse which leads men to make the gratuitous assumption is itself inexplicable. In an earlier chapter[1] I have traced the process of evolution which has resulted in the inconceivable synthetic activity of Green and other Neo-Kantians. It is a curious illustration of the fact that metaphysical misconceptions die very hard. They may be starved to mere shadows, they may become abstract absurdities so devoid of significance as to offer no resistance to the sword of the logician and to lose no blood because they have none to lose ; nevertheless there is always some one eager to take them by the hand and to offer them a seat at his table. That their behavior is eccentric and their conversation incoherent matters nothing ; it is their ancestry that constitutes their claim to recognition.

[1] Chapter V.

Unreflective man could not but recognize that his body was in a certain sense the central point of his experience. With his eyes open, he saw other objects than his body; when he laid his hand on things, he felt them; when his ears were unstopped, he heard sounds. Coming to distinguish with some clearness between mind and body, men carried over to a new field the relation here remarked, and conceived of the mind as *knowing* the contents of consciousness in some analogous manner — as forming a central point to which all were related. For a while it seemed satisfactory to regard this mind as the substance or substratum manifested by mental phenomena, not itself in consciousness. Then, substrata of all sorts falling into discredit, the duty of accounting for the phenomena of consciousness was laid upon something in consciousness, the activity discussed in the chapter above alluded to. There is no step in these processes of transformation which cannot be accounted for when its historic setting is taken into account.

And at the end of it all where do we find ourselves? In the last stronghold of the old "faculty" psychology. Many of us were in our youth taught to believe that the mind perceived things because it had a perceptive faculty; that it remembered things because it had a retentive faculty; that it could recall what was once acquired because it had a reproductive faculty; and that it was in the possession of fundamental truths because it had a regulative faculty. With the development of psychology as a science all this has been swept away. It has been seen that when one makes such statements as these, one really says nothing at all, for the faculty is a mere name for the facts that one is attempting to account for. Nevertheless, we are asked to believe that consciousness is complex because there is a synthetic activity that makes consciousness complex.

How do we know that there is a synthetic activity making consciousness complex? Evidently because consciousness is complex. How do we know that such an activity *can* make consciousness complex? Look at the result: consciousness is complex; *what can better synthetize than a synthetic activity?* In justice to those who reason in this way, it is right that I should remind my reader that no sensible man would argue thus of his own motion and without some propulsion from the ages which lie behind him. When a misconception has escaped destruction for a considerable time, it inspires a certain amount of respect, as do old people who

are deaf and decrepit, feeble in mind and body, but who at least have the merit of being old. After that it does not die, and it is not easily killed; it simply dries up; and, in calling at the houses of one's friends, one finds the withered survival making visits in just the places where one would least expect to meet it.

It is, therefore, not surprising that even acute minds should plague themselves with what they call "the problem of the unity of consciousness." Nevertheless, there is no such problem. There is, of course, the contrast of object and eject, and we must accept the fact that a highly complex group of phenomena may be contrasted as object with another group as eject. But the general fact that this contrast may be between groups is no more a matter calling for explanation than the fact that the contrast may conceivably be between single mental elements. A problem, to which no solution can be given which does not consist in a mere restatement of the terms of the problem, is not a genuine problem. Why not make the problem even broader than it usually is made? Why not ask: How does it happen that there is such a thing as consciousness at all? and why not answer the question by the assumption of an activity or faculty which is able to make possible a consciousness whether simple or complex?

In seeking for an explanation of such general facts as these, we have evidently stepped beyond the limits of the legitimate province of explanation. I have a right to seek for an explanation of the fact that a particular man at a particular time has a sensation of red color. I may point out that he is standing with open eyes before a red lamp, and may conclude that his eyes and nervous system are normal. That another man standing in the same position does not see the lamp as red, I may regard as explained when I have studied the phenomena of color blindness, and have concluded that there is some defect in the organ of vision. Such individual facts are explained when they are referred to other individual facts within the system to which all the facts belong. But to ask how it can be that, in such a world as this, there can be such a thing as a sensation of red, generally considered, is to ask a foolish question. The man who asks it can expect no better answer than that, in such a world as this, there is a reddening activity that is in some occult way responsible for the production of sensations of red. When he has received his answer, he has heard the echo of his own question, and nothing more.

It is the same when we come to study the complexity of consciousness. That a consciousness of a given degree of complexity may be revealed by a certain person at a given time is particular fact. It is not absurd to ask for an explanation of such facts, as it is not absurd to ask why a particular man does not see a lamp to be red when his neighbors do thus see it. We are, to be sure, not in a position to give much of an explanation. We know too little of the human mind and of its relation to the body to explain such facts in detail. It is, however, not inconceivable that we may some day know much more, and may be in a position to give them what may properly be called an explanation. It seems impossible that a brain at the time when it reveals a normal developed consciousness should be in precisely the same condition as it is when this consciousness has been robbed of a large part of its content. What is the actual condition of the brain in either case is unknown to us; but it may become known. When it is known, we shall be able to relate fact to fact and thus explain fact. But it is not conceivable that any extension of our knowledge should make of any real service in explanation the hypothetical synthetic activity which I have discussed above. It is not a new fact; it is a mere form of words.

It is interesting to note that M. Janet, who is possessed of the true instinct of the investigator of nature, and who has a nice sense of the meaning of the term "explanation," makes no more actual use of the synthetic activity which he assumes, than does the student of natural science of the conception of "substratum" in explaining the properties of the bodies which he finds before him. In certain hysterical subjects he has observed a tendency to "mental disintegration." Does he attempt to point out that, in such persons, the mental synthetic activity is in fact weaker than in normal persons? Not at all. "La misère psychologique" does not betray itself directly as a diminution of synthetic force. It is proved to be a "misère" by the fact that the phenomena under discussion may make their appearance as a result of hemorrhages, of phthisis, of typhoid fever, of the administering of toxic substances; as also by the fact that they may be made to disappear sometimes by making the subject eat and sleep, thus inducing a condition of increased bodily vigor.[1]

This is a legitimate attempt at explanation. Facts are con-

[1] *Op. cit.*, p. 453.

nected with facts, and a basis is laid for a science. If what takes place in the brain is unknown, at least mental phenomena may be explained by a reference to facts which stand at one or two removes from them. It is thus that we explain a man's anger when we find that some one has trodden upon his toe, or his grief when a telegram has been put into his hands. The synthetic activity has plainly so little to do with the whole matter that its presence can be explained in M. Janet's volume, and in many other works by acute and erudite authors, only as a survival, and as a testimony to the conservative tendencies in human nature.

CHAPTER XXX

SUBCONSCIOUS MIND

We hear a great deal, at the present day, about subconscious mind, and it is worth our while to delay a little over the significance of the phrase. It is important to remark that the phrase is an ambiguous one, and may easily betray the man who uses it incautiously into saying what is absurd and meaningless.

We have seen in the preceding chapters that more than the one consciousness may be referred to the one organism. We may accept one of the consciousnesses as the normal one, and class together all the other mental phenomena, whose presence may seem to be indicated, as subconscious.

Of course, when we speak thus, we should not mean that the mental phenomena in question are not mental phenomena. Exclusion from a given consciousness does not imply the annihilation of the phenomena excluded, whether we are concerned with groups of phenomena referred to two or more different organisms or with groups of phenomena referred to the one organism. Nor does exclusion from a given consciousness seem to be in itself a reason for denying that the mental phenomena in question are just the sort of mental phenomena with which each of us is directly acquainted — for denying that they constitute a consciousness. The existence of the phenomena in question has not been gratuitously assumed. They have been proved to exist by the adduction of precisely the same sort of evidence as has been adduced to prove that there exist consciousnesses related to the bodies of other men. The adjective subconscious does not seem to be well chosen when it is used in the description of such phenomena. It may, it is true, serve to point out that they are to be recognized as excluded from a given consciousness, but it certainly suggests that the phenomena in question differ in kind from those with which we are familiar; *subconscious* may easily be understood to mean *unconscious*.

Again. I have earlier[1] dwelt upon the fact that all that is present in consciousness at any one time is not recognized as present with the same degree of clearness and vividness. Some things stand out distinctly and unmistakably, and some lie in comparative obscurity. An element in our experience which has occupied, so to speak, the foreground of consciousness, may come to lose its prominence, and may pass gradually into an obscurity which makes it difficult to be sure that it is present in consciousness at all. A careful study of those elements which compose the dim background of our conscious life, a study which cannot be carried out by the aid of direct introspection alone, seems to reveal the fact that, in thus losing their vividness, our conscious experiences do not approach, and finally reach, a definitely marked threshold which can be perceived to limit their downward progress. We do not find that they reach a clear line, and are suddenly cut off; we find rather that they pass into a misty region in which their existence or non-existence at a given time may be a legitimate subject of dispute, and may have to be established laboriously, perhaps rather uncertainly, and by the employment of roundabout methods of proof. In other words, the limits of our conscious life are not well-defined limits; it fades out gradually, and is not seen to cease abruptly.

Now the term "subconscious" may be used to describe a sensation which is thus dimly existent, a sensation so faint that we can prove it to exist only indirectly and without the highest confidence in our conclusion. It is evident that, when we thus use the term, the limits of its application must be a matter of convention. How dim and faint must a sensation be to have a right to be classed as subconscious? We are concerned with the question of degree, and not with the question of kind. We recognize subconscious sensations as differing from one another, and as differing from conscious sensations, just as the latter differ among themselves. There are differences of vividness all along the line; nature does not make a flying leap which enables us to say offhand that a sensation must be relegated to the one class or to the other.

There is, however, still another sense in which men may conceive, and have conceived, mental elements to be subconscious. They may conceive them to be, not other consciousness nor a dim consciousness, but actually *unconscious*.

[1] Chapter III.

I cannot better bring this view before my reader than by using as an illustration the doctrine of Sir William Hamilton,[1] who maintains the existence of unconscious mental modifications, and supports his position by urging a variety of considerations. Sir William distinguishes between consciousness and the mental phenomena of which consciousness takes cognizance. He compares consciousness to an inner light, which illumines unequally the varied content with which it has to do. Some of the phenomena receive its full brilliance, and are known clearly and vividly; some receive but a moderate degree of illumination and are less vividly perceived. But the things of which consciousness takes cognizance whether vividly or dimly do not constitute by any means the whole furniture of the mind. There is much that is latent, much that lies quite beyond the bounds of consciousness and can only be inferred to exist. Among such latent mental furniture Hamilton classes all those things which we regard ourselves as knowing, — sciences, languages, and the like, — but of which we may not happen to be thinking at a given time. "The infinitely greater part of our spiritual treasures," he writes, "lies always beyond the sphere of consciousness, hid in the obscure recesses of the mind." This he calls the first degree of latency.

The second degree exists when the mind contains certain systems of knowledge, or certain habits of action, which it is unconscious of possessing when in its ordinary state, but which are revealed to consciousness in certain extraordinary exaltations of its powers. Thus, in madness, febrile delirium, somnambulism, etc., it may be revealed that the mind is in possession of that which, under normal circumstances, it could not be suspected of possessing. The extinct memory of whole languages may be suddenly restored, and the subject of the disorder may be found capable of repeating accurately, in known or unknown tongues, passages which were never within the grasp of the memory in the normal state.[2]

The third degree or class embraces the mental modifications, of which we are unconscious, but which manifest their existence

[1] "Lectures on Metaphysics." See especially Lecture XVIII, but see also XI, XIII, XIV, and XVII.

[2] It is beside my purpose to comment upon the much discussed illustrations which Hamilton brings forward in support of this second degree of latence.

by effects of which we are conscious. For the existence of such Hamilton adduces evidence of three kinds.

His first argument is as follows: "You are of course aware, in general, that vision is the result of the rays of light, reflected from the surface of objects to the eye; a greater number of rays is reflected from a larger surface; if the superficial extent of an object, and, consequently, the number of rays which it reflects, be diminished beyond a certain limit, the object becomes invisible; and the *minimum visibile* is the smallest expanse which can be seen, — which can consciously affect us, — which we can be conscious of seeing. This being understood, it is plain that if we divide this *minimum visibile* into two parts, neither half can, by itself, be an object of vision, or visual consciousness. They are, severally and apart, to consciousness as zero. But it is evident, that each half must, by itself, have produced in us a certain modification, real though unperceived; for as the perceived whole is nothing but the union of the unperceived halves, so the perception — the perceived affection itself of which we are conscious — is only the sum of two modifications, each of which severally eludes our consciousness. When we look at a distant forest, we perceive a certain expanse of green. Of this, as an affection of our organism, we are clearly and distinctly conscious. Now, the expanse of which we are conscious is evidently made up of parts of which we are not conscious. No leaf, perhaps no tree, may be separately visible. But the greenness of the forest is made up of the greenness of the leaves; that is, the total impression of which we are conscious is made up of an infinitude of small impressions of which we are not conscious."[1]

So it is in the case of every sense. The distant murmur of the sea is a sum made up of parts, and the sum would be as nothing if the individual parts did not count as something. The noise of each wave, at the distance supposed, is inaudible, but we must assume that it produces a mental effect beyond consciousness, or there would be no hearing of the murmur.

A second argument is drawn from the fact that one thought may immediately suggest another with which it does not appear to be bound by any link of association which would account for the transition. For example, the thought of Ben Lomond is immediately followed in Hamilton's mind by the thought of the Prus-

[1] Lecture XVIII.

sian system of education. There appears to be no connection between the ideas. A little reflection, however, recalls to him the fact that, on his last visit to the mountain, he met with a German gentleman; and he concludes that he may interpolate three submerged links of association between the two conscious ideas the lack of connection between which puzzles him. These three links are the German, Germany, and Prussia; they remain in the region of the unconscious, and betray their existence only by what they do in consciousness.

The last argument is drawn from the field of our acquired habits and dexterities. We learn to play on the piano, for example, slowly and laboriously. At first every movement must receive individual attention. But there comes a time when, although we are conscious in a general way of what we are doing, and will to perform the series of movements as a series, yet we are not conscious of the separate movements individually. Such facts as these must be explained as follows: "Some minimum of time must be admitted as the condition of consciousness; and as time is divisible *ad infinitum*, whatever minimum be taken, there must be admitted to be, beyond the cognizance of consciousness, intervals of time in which, if mental agencies be performed, these will be latent to consciousness. If we suppose that the minimum of time to which consciousness can descend, be an interval called six, and that six different movements be performed in this interval, these, it is evident, will appear to consciousness as a single indivisible point of modified time; precisely as the *minimum visibile* appears as an indivisible point of modified space. And as in the extended parts of the *minimum visibile* each must determine a certain modification on the percipient subject, seeing that the effect of the whole is only the conjoined effect of its parts, in like manner the protended parts of each conscious instant, — of each distinguishable minimum of time, — though themselves beyond the ken of consciousness, must contribute to give the character to the whole mental state which that instant, that minimum, comprises. This being understood, it is easy to see how we lose the consciousness of the several acts in the rapid succession of many of our habits and dexterities. At first, and before the habit is acquired, every act is slow, and we are conscious of the effort of deliberation, choice, and volition; by degrees the mind proceeds with less vacillation and uncertainty; at length the acts become secure and

precise ; in proportion as this takes place, the velocity of the procedure is increased, and as this acceleration rises, the individual acts drop one by one from consciousness, as we lose the leaves in retiring farther and farther from the tree, and, at last, we are only aware of the general state which results from these unconscious operations, as we can at last only perceive the greenness which results from the unperceived leaves." [1]

I have thought it worth while to dwell upon Hamilton's doctrine because he discusses so clearly the theory of the existence of unconscious mental elements that his statement of it has by no means been superseded by what has been said on the subject since.[2] Recent advances in the science of psychology furnish added reasons for rejecting his conclusions, but no considerations have been advanced in support of the theory which are distinctly different in kind from those urged by Sir William more than half a century ago.

Before discussing his position let me point out that it is incompatible with the account of consciousness given in this volume.

It recognizes a region of mind which may properly be called unconscious. It distinguishes between consciousness itself and the various elements of which it takes cognizance ; for example, between the consciousness of having a sensation of blue color and the sensation of blue color in itself considered. But consciousness, as I have used the term, is but a name for the whole body of sensations and ideas and the relations which obtain between them. It is not something superadded to these and numerically distinct from them. It is not an inner light, nor a peculiar activity, nor a limited region in which things appear and from which they pass to continue their existence in some region of a different kind. Consciousness is in no wise to be distinguished from the things in consciousness, and the word is but a convenient term to denote these things taken as a whole. I shall not here repeat what I have said elsewhere [3] in justification of this use of the term. I shall merely remind the reader that it has been rather a common failing among the philosophers to distinguish between the wood and the trees in the wood, and then to misconceive the distinction.

[1] Lecture XIX.

[2] There is, moreover, a certain convenience in taking for criticism a statement with which I may assume many of my readers to be familiar.

[3] Chapter IV.

But let us turn to a more detailed criticism of Sir William's doctrine, and let us consider first the first two degrees of latency for which he argues. Every one admits that the storehouse of memory is full of things of which, at a given time, we may not happen to be thinking, and sometimes phenomena are brought to our notice which lead us to suspect that it is much fuller than we commonly suppose it to be. In writing the last sentence I have made use of a metaphor drawn from the field of material existence, and there is no objection to my doing so, provided my metaphor — a common one — does not mislead me. When I speak of my spiritual treasures as "hid in the obscure recesses of the mind," I may mean nothing more than that I may recollect many things which I do not at all times recollect; and, if I mean nothing more, I am expressing an undoubted truth. If, however, I mean to maintain that all the mental experiences which have ever had a place in my consciousness continue to exist from that time on, somewhat as did the treasures which Ali Baba found concealed in the robbers' cave, I make a statement which should by no means be accepted without careful examination.

Nevertheless, such is Sir William Hamilton's conception of the contents of the memory. They lie in the dark until such time as something serves to draw them once more into the light; that they do exist in the dark is evidenced by the fact that it is possible to recover them; one cannot recover the non-existent. The matter appears to be so plain to Sir William, that he does not find it necessary to adduce any argument in favor of the continued existence of past experiences except the fact of recollection.

Now it will be remembered that, in Chapter XXVIII, I spoke of consciousness as being *protensively* extended. I pointed out that we do not consider the consciousness of a man to be a thing of the moment merely; it may stretch over a number of years. We conceive of the total consciousness as an indefinite series of phenomena, most of which are past, some of which are present. Each experience has some definite place in the series; it is the experience of a given moment, and two similar experiences can be distinguished as two from the fact that they are referred to different points in the series. If I have a toothache on a certain day in my twenty-first year, and a very similar toothache on a certain day in my forty-first, I am in no danger of supposing that the two experiences are strictly identical, *i.e.* that I have had but the

one experience. One cannot have the one experience on two different occasions — that is not what we mean by the one experience.

Thus the experience of the one moment is never identical with the experience of another. This fact is perfectly well recognized by the psychologists, who are continually telling us that a "feeling" once gone, can never return; it can only be replaced by another feeling. And the fact is recognized just as clearly by Sir William himself, who takes exception energetically to Reid's doctrine that memory is an immediate knowledge of the past. A thing can only be immediately known, he argues, if it be known in itself, and it can only be known in itself if it be actually existent. But the past is past, and cannot be existent. Memory is an act of knowledge, and can only be cognizant of a now-existent object. Hence we must conclude that memory is not an immediate but a mediate knowledge of the past.[1] All of which is Sir William's way of recognizing the fact that it is proper to draw a distinction between a past experience and the present thought of the past experience, as it certainly is.

It appears, then, that the experience which is actually present in an act of recollection is not the original experience at all, but is a new one, and that every moment must have its own experience, which cannot be transferred to the next moment. What would we think of Ali Baba's powers of reasoning if he argued as follows touching some cave of his own: I put a certain bale of goods into my cave and shut the door; whenever I open it, I find a different bale there; ergo, my bale must exist continuously in the cave? To do Ali Baba full justice, we must suppose that, in addition to the experiences we are supposing him to have, he has certain information that no one bale of goods can exist in two successive instants, but that each fills its instant and is followed by a successor, at least so long as bales are kept under observation.

Perhaps one will defend Ali Baba by saying that, if bales are followed by bales in this way, at least he may assume that the bale he sees when he opens the door is the lineal descendant of the one he put in, and that there has been no moment at which there did not exist some representative of the line. Similarly, some one willing to defend Hamilton may say that, although it is absurd to speak seriously of anything once in consciousness as "coming back again," seeing that a past experience is a past

[1] Lecture XII.

experience and the past can never be made present, yet the mere fact that I can now have the conscious experience that I call a memory proves that between it and the past conscious experience of which it is the memory there has been an unbroken series of unconscious experiences which makes the connection possible.

But how prove such a statement? The memory itself appears to testify to the existence of a certain conscious experience at a definite point in the past. It is silent as to the intermediate series of unconscious existences. My only argument for their existence appears to be the assumption of an analogy between facts of consciousness and material things — I put half a dozen chairs into a room, I take them out again; I repeat the operation, always I am handling the same chairs, and I know that I cannot get out of a room chairs that are not in it. May it not be so with conscious experiences, mental phenomena? I have an experience, I forget it, or rather I allow it to pass from consciousness; then I revive it, and it is back again in consciousness. Could it come back unless it were really one of my possessions?

Now, if one will reflect upon the account of the nature of material things which I have given in earlier chapters in this volume, one will see that the analogy does not hold at all. No one means by a material object, for example, a chair, any single experience of such an object in a consciousness. A man may claim, when he has a given experience, that he sees a chair, and he may equally well claim on another occasion, when he has another and a different experience, that he sees the same chair. In saying this he does not in the least mean that the two experiences are identical. He means that they both are recognized as belonging to a certain complex group of experiences so related that each experience may for certain purposes be taken as representative of all the rest. The individual experiences sink into insignificance, it is the group that is regarded as important. And the group is given a place in a much larger complex still, the external world, in which its right to hold its place is conceived to be quite independent of the fact that any part of it is actually given in perception to any one. Hence it is not nonsense to say that a chair exists when no one is perceiving it. It is not nonsense to say that we take out of a room the same chair that we put into it. In speaking thus we are referring to a great complex of experiences and to relations which obtain within it. We

are abstracting from the fact that we, at a given time, may be intuitively conscious of this or that representative of the complex.

When we are dealing with mental phenomena, as mental phenomena, we are not directly concerned with any such construct. It is true, we group a collection of mental phenomena together and call it a mind. But when we have cleared away from our notion of a mind all that is due to the natural tendency to conceive of a mind after the analogy of a material thing, we find that we mean by a mind nothing more than a consciousness, a greater or smaller group of experiences referred to a material body in the way described in Chapter XXIII. In this group we do not find any mental "things" analogous to material things — lesser groupings of such a nature that we find ourselves regarding the group as present when one of its elements is present, or saying that the one thing continues to exist because a given experience is present at the one time and a different experience at another. There are no mental "things" of this sort, either to the philosopher or to the plain man. Mental phenomena are treated individualistically, and find their place in the whole system of our experiences through the reference to the one great system which introduces order into all our experiences, the system of material things.

It is a recognition of this fact that leads the psychologist to deny that a feeling can ever recur; it is a recognition of it that had led Sir William Hamilton to deny that a present memory can be identical with a past experience of which it is the memory. It is a temporary forgetfulness of this fact that leads men to speak of the past as "brought back," or of a forgotten experience as "revived." Thus, the statement that it would be impossible to recall a past experience, were the experience in question not retained in the treasure-house of the mind, is seen to draw all its plausibility from the assumption that mental phenomena, like material things, may have a continued existence quite distinguishable from the existence of the individual experiences in which such phenomena are revealed, which is absurd. The mental phenomena *are individual experiences*, and there is no such distinction possible. For the existence of mental facts there are only two kinds of evidence: the fact may be given in consciousness, or it may be inferred to exist as an eject. But each mental fact has its own time and place of existing,[1] and cannot exist in

[1] See Chapter XXIV.

two times or in two places. To prove it to exist at all, there must be evidence that it exists at the particular time and place appropriate to it. To prove that it existed at a given time, and then to say that it probably continued to exist after that, is absurd. The mental experience of each moment must be guaranteed by its own evidence, and we must not allow ourselves to be misled by a false analogy. This matter will perhaps become clearer in the next chapter, which will discuss the eternity of matter and the conservation of energy. I hope it will then become plain that we do not, in fact, conceive of minds as we do of material things.

It will be argued, perhaps, that in the rest of Sir William Hamilton's arguments for latent mental facts there is offered what seems to be direct proof that such facts are in existence at a given moment. After the thought of Ben Lomond comes the thought of the Prussian school-system; may we not supply the subconscious links, *the German*, *Germany*, and *Prussia?* Are we not here making a legitimate inference?

Before admitting this, it is well to call before the mind all possible alternatives. In the first place, we should remember that what we call the laws of association rest upon certain observed facts. We notice that ideas follow one another in a given order, and we formulate the result of our observations. The law thus attained is an empirical one, and has no greater authority than the observations upon which it is based. I observe that when B has followed A, and C has followed B once, it is not unreasonable to expect that the thought of A will call up the thought of B, and that thought the thought of C. But suppose that I find, on various occasions, that the thought of C follows the thought of A immediately. Shall I assume that my first formulation, which makes each member in the series suggest only the next member, was an exhaustive account of the process, and shall I determine to adjust my later observations to this by the assumption of the presence of a link which does not seem to be present? Or shall I modify my first formulation of the law in such a way as to bring it into harmony with my later observations? In the absence of any other considerations than those mentioned, surely the latter seems the more reasonable method of procedure.

Again. In Hamilton's day certain parts of the psychological field had been very inadequately cultivated. Such a conception of a consciousness or of consciousnesses connected with a single

organism as we have seen presented in Professor Janet's work would have seemed to Sir William monstrous. Is not the *ego* one and indivisible? All the mental phenomena, which we have any reason to refer to the mind connected with a single body, must be referred to the one *ego*. If it does not possess them consciously, then it must possess them unconsciously; they must be unconscious mental modifications; what else can they be?

Thus may a man be misled by the adoption of a metaphysical theory. But one who has freed himself from this ancient prejudice, and has gained some idea of subconscious mind, in the first sense of the words discussed in this chapter, need feel under no obligation to assume unconscious ideas of any sort to serve as a link of association between two conscious ideas. I have no desire to defend the existence of the German, Germany, and Prussia in the illustration discussed above, but to one who feels that certain ideas not in a consciousness must sometimes be assumed in order to account for certain other ideas in that consciousness, I may point out that in the phenomena of post-hypnotic suggestion we have evidence of the fact that ideas cut off from a given consciousness as one consciousness is cut off from another may make their presence felt in the consciousness in question; and, in this case, we have very good reason for believing that they are not unconscious ideas at all.

To make my list of possible alternatives complete, perhaps I should suggest that the German, Germany, and Prussia may really have made their appearance in Sir William's consciousness without his knowing it. That is to say, they may have been subconscious in the second sense — they may have been dim and fleeting experiences which served to make possible a transition to another idea, but which failed to attract the attention and which thus escaped unnoticed. One of the weaknesses of the old psychology was its failure to recognize how gross and inadequate an instrument direct introspection is.

As to the arguments drawn from the *minimum visibile* and from our acquired dexterities, they are palpably unsound. I cannot assume that, because I can from a distance see a great expanse of green color, I may conclude that every separate leaf concerned in the total effect has its distinct and separate influence in producing a "mental modification," an influence which it would exercise in the absence of every other leaf. In assuming such an exact

quantitative parallel between objective stimulus and resultant sensation, Sir William has evidently gone far beyond what is justified by our actual knowledge of the facts in the case.

The relations of the human body to those things that act upon it are by no means so simple as this. A large dose of a given drug may be injurious to the body ; a small dose may produce an effect of a wholly different kind. A given quantity of food will result in an increase of weight ; doubling the quantity will not necessarily double the gain, and it may result in a disorder that will actually diminish it. Within certain limits we discern objects more clearly when the light under which they are seen is made to increase in intensity, but it is obvious that this relation between intensity of illumination and the clearness with which we see things does not hold indefinitely. It is quite conceivable that the external stimulus applied to one of the organs of sense must reach a certain magnitude, extensive or intensive, before there is such a nervous reaction as is accompanied by any sensation whatever. A lesser stimulus than this may have its parallel in the weight in the scale insufficient to cause in the balance any motion at all.

By the *minimum visibile* Sir William appears to have meant the least thing directly revealed by introspection as given in perception. It is by no means self-evident that a lesser thing than this may not affect consciousness, may not be subconsciously perceived in the second sense of the word "subconscious." If, however, we understand by the *minimum visibile* the least visual stimulus that can affect consciousness at all, — it would be exceedingly difficult to prove anything a *minimum visibile* in this sense, — then we ought to prove, and not assume, if we wish to be Hamiltonians, that a lesser stimulus than this has an effect of any sort that may properly be called mental.

Hamilton's explanation of the fact that actions performed habitually tend to "drop from consciousness" has the same defect as the argument just criticised. He assumes, and does not prove, that an interval of time too short to be represented in conscious mind may be represented in unconscious mind. His explanation, moreover, overlooks the fact that even actions performed slowly, if they be performed frequently enough, may come to be performed unconsciously. The motions of a man in a brown study are not necessarily hurried.

The man who seeks to interpret the significance of a series of actions which has come to be performed "unconsciously" has various hypotheses from which to choose. He may, in a particular case, be inclined to believe that the series was not really absent from consciousness, but had its place in that dim region of consciousness which secures little attention and is apt to be overlooked. On the other hand, he may have reason to believe that the series was really absent from consciousness, — the normal consciousness which is to us *the* consciousness, — but may conclude, nevertheless, that it was represented in *a* consciousness. That it is possible to refer more than one consciousness to the one nervous system we have seen. If the reaction to a particular sense-stimulus has been very rapid, as when a note is struck by the finger in response to the glance which the accomplished piano-player casts upon the sheet before him, he may argue that the incoming message has been the occasion of the immediate despatch of an outgoing message to the muscles from some lower centre in the brain, and that the cortex, the seat of the normal consciousness of the man, has not been concerned in the result. That the disturbance of the lower centre has been accompanied by consciousness it is not absurd for him to believe. That the lower centres may be trained to perform, when functioning independently, actions which they could not have performed had the cortex not originally had a finger in the matter, the physiologist does not find incredible.

Whether such actions as these are to be looked upon as accompanied by consciousness is, of course, a fair question. To the hypothesis that certain "unconscious" actions are evidence of *other-consciousness* one may prefer the doctrine that they point to the existence of no mental facts of any sort. One may maintain that we are in the presence of a *mere* mechanism, not a mechanism with psychic parallels. This doctrine may be pushed to an extreme, as it is in the works of Dr. Despine,[1] who, although well acquainted with the phenomena of hypnotism, finds it possible to maintain that a subject capable of speaking, of answering questions intelligently, of showing preferences, of refusing to obey orders, etc., is a bit of mechanism wholly without consciousness while doing such things as these. It is possible to go but one step farther than this, and that is to deny any conscious-

[1] "Étude scientifique sur le Somnambulisme," Paris, 1880.

ness to one's laboratory assistant and to the members of one's own family.

But if it is absurd to deny the presence of consciousness in the face of such overwhelming evidence, it does not follow that we may assume that all so-called automatic actions indicate the presence of consciousness somewhere. Whether certain of them do so or not is a question upon which one may well prefer to reserve judgment. The evidence for other minds and the determination of their nature are, as we have seen,[1] matters touching which it is well to judge with caution and to speak with modesty.

In discussing Sir William Hamilton's arguments I have, for convenience, spoken as though the unconscious mental facts for which he argues were, at least, something conceivable. But it should be borne in mind that we know no mental facts directly save conscious mental facts. Our argument for the existence of mental facts of which we are not directly conscious — for ejects — is an argument from analogy. If it proves the existence of anything, it proves the existence of conscious mental facts, or, as I should prefer to say, of consciousness. How one should undertake to prove the existence of an unconscious mental fact I cannot conceive, nor, for that matter, how one should make clear to oneself what one means by the expression.

It may be said, this inability arises out of the assumption that consciousness *is* nothing but a name for the mental facts themselves. Once distinguish, as Hamilton and others have done, between consciousness and the facts of which consciousness takes cognizance, and it is not impossible to realize what may be meant by an unconscious mental fact; abstract in thought the consciousness from an ordinary sensation, and what is left is an unconscious sensation. The thing seems simple, on the surface; but we should not overlook the fact that this suggested operation has no analogy with the processes of abstraction as commonly performed. When one has abstracted consciousness from a sensation, is one conscious of the sensation? Manifestly not; it disappears, by hypothesis, from the realm of the known. Then how can one know what is left when consciousness has been abstracted from a sensation? When consciousness is abstracted, nothing is left; or, at least, nothing *appears* to be left, and the assumption that something is left seems to be no better than a gratuitous assump-

[1] Chapter XXVIII.

tion of one knows not what. But it is not worth while to pick a fresh quarrel here with the man who is resolved to regard consciousness as an inner light or a supernormal activity. I leave him to his own devices.

It may seem surprising that, in discussing the subject of unconscious sensations, I have not turned to the extensive psycho-physical literature through which the student of psychology feels it his duty to wade at some point in his course. I have not done so because the gain, for the purpose in hand, would have been small. Still, it seems hardly right to pass over the whole thing in silence, and I shall, *pour acquit de conscience*, say a few words touching the *negative sensations* which have received so much attention in psycho-physical literature.

Let us assume that it is possible to determine the least physical stimulus that is capable of giving rise to a conscious sensation of a given class. Let us further assume that the increments of sensation which correspond to certain definite increments in the stimulus can be determined with accuracy. We have now before us a series of sensations, beginning with one just perceptible, and we have a series of stimuli corresponding to the sensations. The quantity of sensation increases as the stimulus increases, and we may naturally ask ourselves, What is the law which expresses the general relation between stimulus and sensation? Reasoning upon such a basis of assumptions as is above indicated, Fechner, the father of psycho-physics, concluded that the sensations vary in the same proportion as the logarithms of their respective stimuli.

With the justice of his assumptions and with the accuracy of his law, we need not here concern ourselves. It is enough to remark that Fechner thought he had found some law which expressed the quantitative relations which obtain between sensations and their appropriate stimuli. If we assume this law to be a general law, we ought, by its aid, to be able to determine by calculation the particular sensation which must correspond to a particular stimulus, even in cases where direct experience of the sensation is out of the question. Given a limited number of sensations in the same series, and given the stimuli which correspond to these respectively, we may graphically represent the relations which obtain between them all by treating the sensations as points upon a curve. When the equation of a curve is once known, the curve can be produced mathematically,

for it is possible to determine what ought to be the exact location of every point in it. And as the points in the curve represent, in the present case, sensations, it is apparent that we may determine exactly what sensation must correspond to any given stimulus whatever.

Now, the series of sensations appears to begin abruptly in a certain sensation, the least sensation that we can consciously perceive, the first sensation above the "threshold" of consciousness. The stimulus that corresponds to this sensation has a certain magnitude. Suppose a stimulus of a lesser magnitude than this, may we conclude that anything in the world of sensation corresponds to it? Why not? Is it not true that sensations vary as the logarithms of their respective stimuli? May not a curve approach a given line, touch it, and pass below it? The points in the curve which lie above the line in question may be given positive values, there is a zero point where the line is crossed, and the points in the curve which lie below the line must be given negative values. Every point, whether positive or negative, has its position determined in the same way by the equation of the curve. Why may one, then, not speak of a *zero sensation* below the least perceptible sensation, and of a series of *negative sensations* which stretch below this and correspond to the diminishing values of the stimulus all the way to zero? Fechner has a good deal to say about these negative sensations.

But what does he mean by these negative sensations which he calls unconscious, and which he supposes to correspond to stimuli too weak to produce a conscious sensation? He admits that the phrase "unconscious sensations" is, taken literally, mere nonsense, and he does not wish us to take it literally.[1] May we assume that he understands negative sensations to be mere symbols of the degree of physical resistance which is to be overcome before a sensation can appear in consciousness at all? He repels the insinuation, though he certainly sometimes speaks as though this were his thought. Will he have us suppose that negative sensations are actual existences of some sort? This seems to be intended when he makes the suggestion that such sensations may have their place in the consciousness of a world-spirit capable of being affected by weaker stimuli than are human beings — an odd conceit which would make the curve of sensation lie partly in one

[1] "In Sachen der Psycho-physik," Leipzig, 1877, s. 94.

consciousness and partly in another. It is difficult to think, as one reads him, that he had any clear idea of what he really meant.

Perhaps it does not matter very much what he really did mean, for the argument for negative sensations is so poor that it is not worth while to take it too seriously. It is, at bottom, the *minimum visibile* argument of Hamilton, and is not the more worthy of respect because it has borrowed a mathematical formula to cover its nakedness. Even were it true that, within certain limits, sensations varied as the logarithms of their respective stimuli, it would be the height of absurdity to jump to the conclusion that this relation must hold good *semper et ubique*, and that there are no limits to the system. When one's faith in a formula goes so far as to lead one to piece out a series of conscious sensations by a series of unconscious sensations, it is time to begin a reëxamination of one's reasonings.

I shall not delay longer over arguments for unconscious mind. I know of none, whether urged by Fechner or by others, that are worthy of being taken seriously. We have seen, however, that there are two senses of the word "subconscious" in which it is not absurd to talk of subconscious mind. Of the significance of subconscious mind in these senses I wish to speak briefly before bringing this chapter to a close.

We are all aware of the fact that we know many things without being able to say just how we know them, and we choose to do many things without being able to point out just the motives that have influenced our decision. We may have a vague feeling of bodily discomfort, and may be very sure that we are not at ease, and yet we may be unable to determine to what elements in consciousness our elusive discontent may be attributable. After a few moments of conversation with a person whom we have met for the first time, we turn away with the impression that his character is, at bottom, a hard and unsympathetic one, or an insincere one, yet we may be quite incapable of justifying our impression by referring it to any single clearly discernible facial expression or to any objectionable sentence. There is no science of physiognomy worthy of the name; yet no one can deny that an observant man can gain from the expressions of the human face a fair notion of character. Certain marked peculiarities can, of course, be definitely pointed out. Laughter does not suggest a funereal frame of mind; we know perfectly well what

the caricaturist means us to infer when he turns the corners of a mouth up or turns them down; but our information as to what is revealed by facial expression goes much beyond this, and we may confidently infer calm strength or a secret sadness where we are wholly unable to indicate any definite mark which is made the basis of our judgment.

There is no department of our mental life in which judgments of this sort do not play their part. We are apt to say, in such cases, that we *feel* that this or that is true, or that we know by *intuition* that it is true. Such judgments may be said to have their roots in the subconscious, and the immense significance of the subconscious in the life of man ought to be given due recognition. But it must not be forgotten that to recognize the existence of the subconscious in this sense is nothing else than to recognize that consciousness-contents do not all stand out with equal vividness, and that much may be known and may influence our judgments without on that account being clearly and analytically known.

Touching the subconscious in this sense of the word, I beg the reader to bear in mind two things : —

First, let him remember that between the conscious and the subconscious there is no clear line. Experiences of the one class fade gradually into those of the other; the difference is one of degree and not one of kind. Moreover, there is no reason to regard the realm of the subconscious as the abode of a mystery which can never be dispelled. Regions which do not lie open to the eye of direct introspection may, nevertheless, be explored and mapped out with the aid of approved scientific methods. The psychologist is constantly occupied in doing work of this kind, and it is not inconceivable that the time may come when his information touching the dimmest and vaguest of the elements which enter into our mental life may be reasonably clear and satisfactory.

In the second place, let it not be forgotten that we have no warrant for assuming that "intuitions" are infallible, or even that they are of necessity a safer guide than the deliverances of conscious reflection. For example, most of the persons with whom we come in contact have little interest in Ethics as a science, but they have very definite opinions upon the subject of what is right and what is wrong in individual cases. If we ask why an action is right or how it is known that an action is right, we receive from them no intelligible answer. They *feel* that it

is right, and that is sufficient. Now, I have no desire to underrate the importance of the unsystematic and sometimes erratic ethical training to which we are all subjected from the cradle, nor would I maintain that any course in Ethics could take its place. But it is just to point out that the ethical "intuitions" of the individual may reflect the prejudices of an age, of a nation, of a community, or of a social class, and may seem sadly in need of revision to one capable of a wider vision.

Science is not infallible, and the attempt to think clearly may result in one's taking the wrong path ; but to heap obloquy upon science and clear thought and to turn by preference to the subconscious as the ground of one's judgments, is to close deliberately the windows which admit the light of day, and to prepare for oneself that darkness in which the ghosts of superstition may be expected to appear.

I may be excused for uttering a somewhat similar note of warning touching our attitude toward the subconscious in the sense of other-consciousness. That more than one consciousness may be referred to the one organism we may accept as fact. The contents of such consciousnesses and their relations to each other are legitimate matter for scientific investigation. There is no field of science, however, which calls for more patience and more caution in him who would cultivate it successfully. This is a soil upon which every superstition has flourished in the past, and it appears ever ready to give birth to hasty generalizations, far-reaching inferences, and bold flights of the poetic imagination. To do good work in this field one needs to have in one's composition a grain of scepticism, and one needs also to possess a nice sense of what constitutes scientific evidence. Unhappily, it appears that this field offers irresistible attractions to the man who revels in the mystery of the subconscious, who thrills in the presence of spiritualistic mediums, who looks for short cuts to the solution of great problems, who loves the poetry of science rather than the dry facts which constitute the body of exact knowledge. Of the subconscious in the sense under discussion we have so little knowledge that is worthy to be called scientific, that the prudent man will regard with no other feeling than curiosity the airy edifices which uncritical minds have optimistically founded upon it and whose mushroom growth may safely be accepted as a mark of their unsubstantial character.

CHAPTER XXXI

MENTAL PHENOMENA AND THE CAUSAL NEXUS

In the doctrine of mind and world which has been set forth in the preceding chapters, mental phenomena have not been placed in the one series of causes and effects with the occurrences which belong to the physical world.

In common life we use the words "cause" and "effect" loosely, and there is no reason why we should affect a rigorous exactness which is not called for by the exigencies of the situation, and which savors of pedantry. But one who has seen the force of the considerations urged by the parallelist, and has come to appreciate the distinction between the subjective order of experience and the objective, cannot be inclined to regard sensations or ideas as the effects of physical causes or as the causes of physical effects, when the words "cause" and "effect" are used in their strict and proper significance. If the physical world is a perfect mechanism, there is no physical occurrence which cannot theoretically be completely accounted for by a reference to physical causes, and there is none whose effect can be other than a physical occurrence. Cause and effect are seen to be a name for antecedent and consequent in the series of changes that constitute the life history of the mechanism of nature. In this series of changes mental phenomena have no place; they belong to a different order — they are not *antecedent* or *consequent*, but have their place on a *parallel* line. Their abstraction does not leave the order of causes and effects incomplete.

Again. Mental phenomena have not been shown to belong to a single orderly world of their own, in which the appearance of a sensation or of an idea could be accounted for somewhat as the fall of a raindrop can be accounted for in the physical world. It is true, we sometimes point to the laws of the association of ideas; and speak as though the idea which "introduces" another were a cause of the appearance of the latter. The analogy, however,

between such antecedence and succession and the order of physical causes and effects is an extremely remote one.

In the mechanical order of nature it is inconceivable that a given cause should produce any other than one single effect, and the precise nature of this effect may (theoretically) be calculated by any one who is acquainted with the cause. On the other hand, any sort of idea may suggest any other, if the two happen to be connected — a sight may suggest a sound, another sight, or the idea of a movement. We can trace no fixed proportion between the antecedent idea and its successor; nothing that in the least corresponds to the nice adjustment of causes and effects in the external world. Moreover, even were we inclined to regard such a relation of ideas as a causal connection, we should be compelled to admit that the rise of a sensation could not be accounted for by a reference to any antecedent mental fact. Finally, the realm of minds appears to be broken up into a great number of relatively independent principalities, which transact their business without much reference to each other. An idea in a mind may suggest another idea in the same mind, but the chain soon comes to an end, and we cannot follow it through a series of minds into an indefinite past. But it is conceivable that one who knew enough should trace the antecedents of the falling drop along the series of physical causes to the cosmic mist from which in the fulness of time our universe was precipitated.

In the seventeenth century a man of genius made the bold attempt to treat mental phenomena after the fashion of physical phenomena. Spinoza accepted a physical world complete in itself and wholly cut off from any interference from the world of mind. But he also assumed a mental world equally complete in itself, and unaffected by any of the changes taking place in the world of material things. He conceived all nature to be animated, and held that each corporeal thing has corresponding to it a mental thing, which may be called its idea. He would have us believe that all these mental things or ideas are interrelated as are the physical things to which they correspond; that they constitute a system of essentially the same character; and that, just as happenings in the material world are completely accounted for by a reference to their physical causes, so we may account completely for all happenings in the world of ideas by a reference to mental causes, which are other ideas. This is a parallelism which does

not content itself with a somewhat parsimonious distribution of halos, but conjures up and places beside the material world a second world coextensive with it, as complex, as self-sufficing, as well able to get along entirely by itself. The boldness of the speculation compels our admiration.

Our conviction, however, it cannot compel. When we open our eyes and ask ourselves what are actually the facts in the case, we realize that our philosopher has given free rein to his imagination. We have seen, in discussing the distribution of minds, that our evidence for the existence of mind gradually fades out. That human bodies reveal mind, it does not occur to us to doubt at all. That certain other bodies, widely different from human bodies, yet bearing some analogy to them, reveal mind, we think possible and perhaps probable. But we must admit that we have no evidence that consciousness or anything like consciousness accompanies the fall of a raindrop, the rending of a rock through the influence of frost, the chemical changes which reveal themselves to us under the form of combustion, the electric discharge that spreads devastation in the storm.

The geologist informs us that there was a time when the occurrences on this planet were of no other character. We now find it a little world in which one of the most striking facts is the distribution of minds. The evolutionary philosopher, if he venture to touch upon the matter at all, seems forced to conclude, with Mr. Spencer, that, at some point in the world's history, consciousness has become "nascent." And this, the appearance of a new sort of being, has been followed by what may be called a whole series of beginnings. With the gradual development of organisms and the increasing complexity of nervous structures, there have come into existence new classes of sensations, colors, sounds, tastes, odors. Such as these did not exist and could not exist so long as the life of the world was of a low order.

We need not, however, go back to a remote and little known past in order to find ourselves confronted with this problem of beginnings. Spinoza's notion that all the mental phenomena that exist form one directly interrelated system is, as I have above indicated, by no means borne out by the facts. If the coming into existence of a consciousness at some distant past time is a problem, the coming into existence of a new consciousness at the present moment is equally a problem. I cannot say that consciousness

began once for all with the first rudimentary sensation of a creature which has long since disappeared. That sensation has not existed continuously since, passing from consciousness to consciousness and rendering it unnecessary to assume anywhere an origination. Nor may we regard that sensation as related to later sensations as a physical cause is related to its effect. They cannot be derived from it in any intelligible sense of the word. If, then, it is worth while to dwell upon the coming into being of consciousness at some period of the world's history, it is worth while to reflect upon the coming into being of the consciousnesses which appear to be introducing themselves upon the stage all about us at the present day.

Moreover, we must not forget that a consciousness is a complex thing and does not come into being in an instant. It is composed of phenomena which succeed each other in time, and it is born, so to speak, bit by bit. New phenomena appear in it from moment to moment. At times the consciousness seems to be suppressed, that is to say, there is, as in sound sleep, a time which we may regard as unfilled by phenomena of any sort; and then the thread is taken up again with the appearance of new phenomena. If we may anywhere ask for an explanation of origins, must we not ask for it all along the line — at the rise of every consciousness, at the appearance in each consciousness of every new phenomenon whatever? And if we may neither account for mental phenomena as the results of physical causes, nor account for them as the results of mental causes, in what sort of a world are we? Are we not forced to reject the Lucretian maxim that nothing is born from nothing, and into nothing nothing can return? The psychologist, then, seems to be busied with existences which appear and disappear causelessly, and we may deride him for wasting his time upon that which cannot be the object of a science.

The notion that any occurrence whatever must be left at loose ends and denied a place in the orderly system of nature cannot but seem shocking to the man of scientific mind. It is scarcely too much to say that even the plain man, when he reflects upon the matter, must find something absurd in the doctrine that mental phenomena are existences of so irresponsible a nature that their appearances and disappearances are to be regarded as inexplicable. Common experience appears to testify to a certain orderliness in the world of mind, as well as in the world of matter. The nature

of the mental phenomena that will make their appearance when the schoolmaster's rod has been applied to a boy's body can be predicted.

The simplest and the most natural hypothesis to account for such facts as these seems, at first sight, to be that of the plain man, who can see no objection to regarding thoughts and things as having their place in the one causal nexus. We have seen[1] that so eminent a scientist as Mr. Huxley can accept this scheme with some slight modification, and can hold that consciousness is related to the mechanism of the body as a collateral product of its working. He who can conceive of consciousness in this way does seem to have found a place for consciousness in nature, and need not regard the appearance of a given sensation or idea at a given time as inexplicable. Moreover, he need not be disturbed by the fact that mental phenomena appear sporadically, and that the mental world as a whole is, so to speak, a thing of gaps and patches. He may believe that consciousness is produced or destroyed as the conditions for its production or destruction are forthcoming.

Nevertheless, the hypothesis seems rather a crude one to the man who realizes the gulf that lies between physical phenomena and mental. The depth of the abyss is sometimes recognized even by the man whose eager desire to fit all phenomena whatever into the one evolutionary scheme leads him to close his eyes to it at certain critical points in his system. Thus Mr. Spencer, when he is treating of the distinction between physical phenomena and mental phenomena, writes as follows : —

"Throughout the foregoing chapters nervous phenomena have been formulated in terms of Matter and Motion. If from time to time the phrases used have been tacitly referred to another aspect of nervous phenomena, the tacit references have formed no parts of the propositions set down; but have been due to lack of fit words — words free from unfit associations. As already said, the nervous system can be known only as a structure that undergoes and initiates either visible changes, or changes that are representable in terms furnished by the visible world. And thus far we have limited ourselves to generalizing the phenomena which it thus presents to us objectively.

"Now, however, we turn to a totally distinct aspect of our

[1] Chapter XVIII.

subject. There lies before us a class of facts absolutely without any perceptible or conceivable community of nature with the facts that have occupied us. The truths here to be set down are truths of which the very elements are unknown to physical science. Objective observation and analysis fail us; and subjective observation and analysis must supplement them.

"In other words, we have to treat of nervous phenomena as phenomena of consciousness. The changes which, regarded as modes of the *Non-Ego*, have been expressed in terms of motion, have now, regarded as modes of the *Ego*, to be expressed in terms of feeling. Having contemplated these changes on their outsides, we have to contemplate them from their insides."[1]

I shall not here comment upon Mr. Spencer's suggestion that it is the one series of changes that is to be expressed, now in terms of motion, and now in terms of feeling; nor upon his use of the words "inside" and "outside." These are the usual confusions of the parallelist who has not yet freed himself from the trammels of materialistic thinking. I content myself with remarking that in the above extract he regards mental phenomena as absolutely without any perceptible or conceivable community of nature with physical facts, as lying wholly outside the sphere of physical science. They cannot, then, be related to physical facts precisely as these latter are related to each other, and one may well question whether they can be the causes or effects of motions in matter. Mr. Huxley's explanation of the rise of a sensation seems, hence, to be at least a dubious one.

But does it not remain for Mr. Spencer to face the question of the coming into being of mental phenomena? He recognizes the fact that it is not every physical change, nor even every nervous change,[2] that has an "inside." The "insides" of physical changes only come into being at this or that point in the world's history. How account for such a beginning to be? Must it not be accounted for, if the continuity of the world-process is to be kept unbroken? Mr. Spencer accounts for it by quietly obliterating the distinction which he has drawn: —

"There cannot be coördination of many stimuli without some ganglion through which they are all brought into relation. In the process of bringing them into relation, this ganglion must be subject to the influence of each — must undergo many changes.

[1] "Principles of Psychology," Part I, Chapter VI, § 41. [2] *Ibid.*, § 43.

And the quick succession of changes in a ganglion, implying as it does perpetual experiences of differences and likenesses, constitutes the raw material of consciousness. The implication is that as fast as Instinct is developed, some kind of consciousness becomes nascent."[1]

We see thus, that, although there is absolutely no perceptible community of nature between physical facts and mental facts, a succession of physical changes, if rapid enough, may constitute the raw material of consciousness. No wonder Mr. Spencer finds himself "passing without break from the phenomena of bodily life to the phenomena of mental life."[2]

Such a jump from the physical to the mental Professor Clifford cannot make, but he feels no less strongly than Mr. Spencer the necessity of fitting mental phenomena into a general evolutionary scheme. Having observed that the complexity of consciousness is paralleled by complexity of action in the brain, and having inferred a correspondence extending even to the elements, that is to say, having inferred that each simple feeling corresponds to a special comparatively simple change of nerve matter, he develops his doctrine as follows:[3] —

"The conclusion that elementary feeling coexists with elementary brain-motion in the same way as consciousness coexists with complex brain-motion involves more important consequences than might at first sight appear. We have regarded consciousness as a complex of feelings, and explained the fact that the complex is conscious as depending on the mode of complication. But does not the elementary feeling itself imply a consciousness in which alone it can exist, and of which it is a modification? Can a feeling exist of itself, without forming part of a consciousness? I shall say *no* to the first question, and *yes* to the second, and it seems to me that these answers are required by the doctrine of evolution. For if that doctrine be true, we shall have along the line of the human pedigree a series of imperceptible steps connecting inorganic matter with ourselves. To the later members of that series we must undoubtedly ascribe consciousness, although it must, of course, have been simpler than our own. But where are we to stop? In the case of organisms of a certain

[1] *Op. cit.*, Part IV, Chapter V, § 195. [2] *Ibid.*, Part III, Chapter I, § 131.

[3] "On the Nature of Things-in-themselves," Lectures and Essays, London, 1879.

complexity, consciousness is inferred. As we go back along the line, the complexity of the organism and of its nerve-action insensibly diminishes; and for the first part of our course we see reason to think that the complexity of consciousness insensibly diminishes also. But if we make a jump, say to the tunicate mollusks, we see no reason there to infer the existence of consciousness at all. Yet not only is it impossible to point out a place where any sudden break takes place, but it is contrary to all the natural training of our minds to suppose a breach of continuity so great. All this imagined line of organisms is a series of objects in my consciousness; they form an insensible gradation, and yet there is a certain unknown point at which I am at liberty to infer facts *out* of my consciousness corresponding to them! There is only one way out of the difficulty, and to that we are driven. Consciousness is a complex of ejective facts, — of elementary feelings, or rather of those remoter elements which cannot even be felt, but of which the simplest feeling is built up. Such elementary ejective facts go along with the action of every organism, however simple; but it is only when the material organism has reached a certain complexity of nervous structure (not now to be specified) that the complex of ejective facts reaches that mode of complication which is called Consciousness. But as the line of ascent is unbroken, and must end at last in inorganic matter, we have no choice but to admit that every motion of matter is simultaneous with some ejective fact or event which might be part of a consciousness. From this follow two important corollaries.

"1. A feeling can exist by itself, without forming part of a consciousness. It does not depend for its existence on the consciousness of which it may form a part. Hence a feeling (or an eject-element) is *Ding-an-sich*, an absolute, whose existence is not relative to anything else. *Sentitur* is all that can be said.

"2. These eject-elements, which correspond to motions of matter, are connected together in their sequence and coexistence by counterparts of the physical laws of matter. For otherwise the correspondence could not be kept up.

"That element of which, as we have seen, even the simplest feeling is a complex, I shall call *Mind-stuff*. A moving molecule of inorganic matter does not possess mind or consciousness; but it possesses a small piece of mind-stuff. When molecules are so combined together as to form the film on the under side of a jelly-

fish, the elements of mind-stuff which go along with them are so combined as to form the faint beginnings of Sentience. When the molecules are so combined as to form the brain and nervous system of a vertebrate, the corresponding elements of mind-stuff are so combined as to form some kind of consciousness; that is to say, changes in the complex which take place at the same time get so linked together that the repetition of one implies the repetition of the other. When matter takes the complex form of a living human brain, the corresponding mind-stuff takes the form of a human consciousness, having intelligence and volition."

This is the famous Mind-stuff theory. How deeply Clifford's thought has been influenced by Spinoza is everywhere manifest. The theory rests upon three very bold assumptions — indeed, it is not too much to say that it consists of three very bold assumptions.

The first assumption is the existence of mind-stuff. The only argument we have for the existence of ejects proves that they exist somewhere in the world, *i.e.* that they are revealed by certain organisms. Clifford assumes that they exist everywhere. For this we have not a shred of evidence.

The second assumption is that mental phenomena are so interrelated that there obtain in the realm of mind laws which are the counterpart of the physical laws of matter. This Spinozistic notion is, as I have pointed out earlier in this chapter, flatly contradicted by what little we know of minds.

The third assumption is that all the classes of sensations and ideas of which we are conscious, colors, tastes, sounds, etc., are composed of elements which are not of these classes at all, but something more rudimentary, something that "cannot even be felt."

Before the publication of the essay from which I have quoted above, Mr. Spencer had printed in his "Principles of Psychology" an argument to prove that all classes of sensations and emotions are built out of a common unit, a primordial element of consciousness, which he identifies with a "nervous shock."[1] Are not musical sounds due to a series of rapid vibrations each of which affects the organ of hearing? Is not the note as heard seemingly continuous? Must not the seemingly continuous note really be composed of a vast number of distinct consciousness-elements each of which is due to a single blow upon the organ of sense? This doctrine of Mr. Spencer has been much criticised by the

[1] "Principles of Psychology," Part II, Chapter I, § 60.

psychologist, and I shall do no more than remind the reader that it carries us back at once to the *minimum visibile* hypothesis discussed in the last chapter. To discover what is actually in a man's consciousness we must not content ourselves with counting the number of vibrations in some medium outside of him. To arrive at the elements of which any complex state of consciousness is made up, there is but one method of procedure — psychological analysis; and psychological analysis furnishes no evidence whatever that the mental phenomena with which we are familiar are made up of any such material as has been suggested either by Mr. Spencer or by Professor Clifford. For the third assumption there is no more justification than there is for the other two.

The mind-stuff theory is, then, a castle in the air. What induced a man of science to erect so imposing a structure upon so unsubstantial a foundation? Clifford tells us himself: it is "contrary to all the natural training of our mind" to suppose a breach of continuity. In other words, it is repugnant to our minds to suppose that mental phenomena may appear upon the scene without antecedents. To avoid such a conclusion we may make all sorts of assumptions for which we can furnish no warrant in observed fact.

The attitude of the man of science, as exemplified by the writers who have been mentioned above, is one with which it is not hard to feel sympathy. The man of science has learned to regard the material world as a system in which there is constant transformation, but nothing that may be regarded as creation. In an earlier age, this attitude toward the material world expressed itself in the statement that through all the changes that take place in the world the quantity of matter and motion remains the same. To-day the doctrine of the eternity of mass and the conservation of energy has taken its place, and better formulates the conclusion to which physical facts seem to point. It recognizes a certain equivalence among physical phenomena, and it maintains that no change whatever can take place in the system of physical things which is not preceded by, and followed by, conditions which a knowledge of the system would show to be the equivalent of the change in question. In other words, it explains every change by referring it to its adequate cause, which, after all, means only that it explains every change by showing that it is an exemplification of the laws of the system.

Now the coming into being of a group of mental phenomena is a change — if not a change in the material world, still a change in the universe as a whole. Must we not account for this as experience has shown us that we must account for physical phenomena? That is to say, must we not follow "the natural training of our mind"?

The impulse which is characterized as the natural training of our minds should, I suppose, be recognized as having a twofold root. First, there is the common experience that mental phenomena do not seem to be absolutely lawless. They often appear and disappear as we would expect them to under the circumstances. But this experience does not carry us very far, for we have not a very accurate knowledge of mental phenomena. The general expectation that in their behavior they will obey some law or laws is, in the case of the man of science, greatly reinforced by observation that there is a sphere in which the reign of law appears to be absolute. In the physical order of causes and effects every phenomenon seems to be completely accounted for, and the man familiar with this order has an ideal which he is naturally inclined to realize everywhere.

If he has been deeply impressed, as was Clifford, by the contrast of the subjective and the objective orders in experience, he may refer mental facts to some independent system of their own. To do this he is compelled to assume the existence of a world of ideas patterned after the world of things — a prodigious assumption. If he recognizes that there is no real ground for making this assumption, what remains for him save the assumption that mental facts can somehow be given a place in the one system with physical facts? What more natural, in other words, than that he should stretch the doctrine of the conservation of energy[1] and make it cover facts mental as well as facts physical? He may then maintain that something may disappear from the physical world and its equivalent appear in the world of mind.

It should not be overlooked that, in either case, it is the experience of physical facts and their relations that furnishes a basis for the inferences drawn concerning mental facts. Of Clifford's doctrine I shall say no more; it is too fanciful to be taken seriously by one who has weighed the evidence we have for the existence

[1] In the pages to follow it will be seen that the word "energy" is used in a very broad sense.

of minds and the information we have touching the interrelations of mental phenomena. But, as concerns the other doctrine, I shall ask : first, Is it a conceivable doctrine ? and, second, If conceivable, is it a reasonable doctrine for us to adopt ?

It has been held that the transition from physical to mental phenomena is made easier when we make *energy*, which is defined in terms of work, the fundamental concept from which is derived such concepts as matter and cause. We may regard all changes as transformations of energy — the change from the purely physical to the nervous, and from the nervous (which is still physical in the broad sense of the word) to the psychical. If we ask how mind and matter are related, we seem to be confronted with a serious problem ; but when we remember that matter is but a manifestation of energy, and that mind is also a manifestation of energy, the way is made smooth before us. The various forms of energy may be substituted for one another.[1]

But it should never be forgotten that abstract concepts of every description gain the only significance which they have from the actual individual experiences of the subjective and of the objective order upon which they are based. The concepts of energy, matter, motion, cause, and all the rest are as empty as the Democritean void, if we rob them of all reference to the above-mentioned experiences and their relations. Nothing is created by a mathematical formula; something may be summed up by it, *i.e.* it may symbolize something. It is the same with the general notions of which we make use in describing our world ; they are convenient symbols, but it is absurd to place them above the experiences in which they find their justification ; and to be sure that we are warranted in using them we must always come back to those experiences and see whether they furnish a basis for the superstructure that we are attempting to erect upon them.

Moreover, we must realize that there is a danger in abstract expressions. If we will insist, with Fenimore Cooper, in calling women " the sex " and water " the element," we may forget that some women are unattractive and some water dirty. And if we will elect to call physical facts and mental facts different manifestations of energy, we may seem to ourselves to have established a bond of community between them, and to have facilitated the passage from the one class of experiences to the other. Whether

[1] Compare Ostwald, " Vorlesungen über Naturphilosophie," Leipzig, 1902, s. 396.

there really is such a bond, and what may be its nature, we cannot discover by a mere distribution of titles. We must come back to the individual facts and see how they stand related.

How, then, must the man who wishes to make the doctrine of the conservation of energy cover facts mental as well as facts physical, conceive of the relation of the objective and the subjective orders in experience?

Let us suppose that, when he speaks of the conservation of energy in the physical world, he means merely to recognize the equivalence of certain physical phenomena, or groups of physical phenomena, mechanical, chemical, thermal, electrical, etc., and to indicate that, among all the changes that take place, there is no change that may not be accounted for by a reference to this system of equivalents. That he should extend his doctrine in such a way as to make it embrace mental facts means, (1) that he should regard the whole body of physical facts as constituting, when taken alone, an imperfect system; and (2) that he should regard the lacks of the system as compensated by mental facts.

Now it should be remarked that the man who holds to the existence of such a system of equivalents in the physical world is not compelled to maintain that all the classes of phenomena that he is dealing with are reducible to the one class, and that they are measurable in terms of the same unit. That they may be built into a system it is merely necessary that the individual phenomena be identifiable, *i.e.* that they be in each case distinguishable from other phenomena of the same class and from phenomena of other classes. If they be thus identifiable, and if they be observed to stand in fixed relations to each other, we have a system. The recognition of this truth ought to set aside an oft-repeated objection to making mental phenomena of any sort the equivalent of physical phenomena. It is constantly argued that among physical phenomena we may detect a quantitative equivalence, but that the differences in mental phenomena are qualitative and not quantitative. It should be observed, however, that, even if this were strictly true, it could have no bearing upon the point under discussion. Mental phenomena are distinguishable from each other, they are identifiable; and if it can be proved that, when a particular sensation comes into existence, there is a break of a particular sort in the physical order, a man may, if he chooses, call the sensation the *equivalent*

of what has been found lacking in the physical world. He is using the word as he uses it when he speaks of the mechanical equivalent of heat or of chemical action.

Let us suppose, again, that the man who is interested in making the doctrine of the conservation of energy cover mental facts does not stop short at chemical, electrical, thermal, and similar phenomena, but believes that he is everywhere in the presence of a mechanism which is merely veiled by such phenomena. His physical world is a world of matter in motion, or, as the student of mechanics would express it, a world which may be described in terms of mass, length, and time. He, too, has his system of equivalents, and it is based upon observation, for the science of mechanics is not the product of the poetic imagination, and has not been supernaturally revealed to man. It has been built up slowly by an observation of the changes in the material world and a reflection upon their order.

How must such a man conceive of the world and the mind when he has stretched the doctrine of the conservation of energy? He must hold that the physical world is a mechanism, but a defective one, and that its defects are compensated by mental phenomena. In other words, he must hold that sometimes a motion may disappear from the physical world, or the mass of a body may be slightly diminished, and that the change cannot be accounted for by a reference to mechanical laws; and he must maintain that, on occasion of a particular disappearance of this character, there comes into being a particular mental phenomenon or group of mental phenomena. He is not compelled to say that matter or motion have "turned into" mind. Such an expression gives his opponent too good an opportunity to scoff. He need only say that the sensation or other mental fact is the "equivalent" of something that was not mental.

Is this doctrine in either of the forms just described a conceivable one? It is conceivable, and equally conceivable in both forms. So much for the first of the two questions which I raised a few pages back. And now for the second: If conceivable, is it a reasonable doctrine for us to adopt?

Perhaps I shall be taxed with inconsistency for passing on so quickly to the second question, in view of the answer which I have given to the first. Is not the doctrine under discussion a form of interactionism — indeed, just the form of interactionism

discussed at the close of Chapter XVII? Was it not there pointed out that the interactionist busies himself with the attempt to patch up a defective machine with immaterial cogs and couplings, which cannot be inserted at the break, because they cannot be given a place anywhere in the material world? Did it not seem to follow that the doctrine is in its nature absurd and inconceivable?

It is necessary to draw a distinction. The attempt to patch up a defective machine with what is immaterial is, indeed, absurd. Such a patch cannot be *put on*, such a joint cannot be *inserted*, in any sense of the words that has a significance. The machine remains defective; there is an unfilled gap. But it is possible for one to hold that the external world is a defective machine, and that when one discovers a break in it, one may infer the existence of mental phenomena, which form no part of the machine, which do not fill the gap, which are not anywhere in the external world, which belong to a different order.

Whether any man who realizes clearly how absurd it is to attempt to patch his machine with such phenomena will break his machine here and there, that he may have the pleasure of thus patching it, is a different question. If we may judge by what the interactionists have actually written, we must conclude that none of them would have insisted upon regarding the machine as defective were it not for a tincture of materialistic thought—for the secret conviction that such patches may be put on. In the chapter to which I have above alluded I was concerned with showing that the interactionist has always been a veiled materialist.

That this is true, there can be little doubt. Descartes drops his little soul into the pineal gland, where it serves the purpose of a cog-wheel that transmits motion. Huxley, who may be called half an interactionist, relates the soul to the body as the bell of a clock is related to the works, or as the steam whistle is related to the locomotive engine. McCosh conceives that mind and body came together at some point or surface within the human body. James speaks of feelings and motions as stewing together in the same vat. One and all believe that it is possible to patch the machine, and it is this belief that makes interactionism appear to them a desirable doctrine. The word "interaction" does not seem to be an empty sound; it calls up the picture of billiard-balls hitting each other, and of predictable resulting motions.

And what animus has inspired those who have scoffed at

interactionism? Nothing else than the recognition that physical facts and mental facts belong to different orders, and the consciousness that it is absurd to try to arrange them in the one order. Spinoza could not consent to make one system out of things so disparate as thought and extension. "It will," wrote Clifford, touching the doctrine of the interactionist, "be found excellent practice in the mental operations required by this doctrine, to imagine a train, the fore part of which is an engine and three carriages linked with iron couplings, and the hind part three other carriages linked with iron couplings; the bond between the two parts being made up out of the sentiments of amity subsisting between the stoker and the guard." "Try to imagine," exclaims another writer, "the idea of a beefsteak binding two molecules together."[1] The chasm between the two classes of phenomena has not seemed less profound to those who, nevertheless, do not find it impassable when they are moved by other considerations. I have quoted from Mr. Spencer above. Says Professor James, "If evolution is to work smoothly, consciousness in some shape must have been present at the very origin of things,"[2] which means that evolution must keep to the order with which it started, for it cannot pass over the gulf.

These facts are extremely significant. They indicate plainly that the impulse to place mental phenomena in the one causal nexus with physical phenomena has its root in an obliteration of the distinction between the two. When a man fails to realize the distinction between the phenomena of the two orders, and slips into a materialization of mental facts, he is ready to become an interactionist. He does not become an interactionist because the position is a *conceivable* one, but because it seems to him a *reasonable* one. He has made mental facts more or less inconsistently physical, and he can find no good reason for excluding them from the physical order.

One may hold, then, that it is conceivable that the doctrine of the conservation of energy be extended in the sense above indicated; and one may maintain, nevertheless, that such an extension of it is purely gratuitous, and, hence, unworthy of serious consideration. That it is thus gratuitous and unjustifiable I shall try to show in what follows.

[1] Mercier, "The Nervous System and the Mind," London, 1888, p. 9.

[2] "Psychology," Vol. I, p. 149.

It must be remembered that the man who proposes to stretch the doctrine of the conservation of energy must not give to his position a spurious air of respectability by a mere trick of phrase. He must not obliterate the distinction of the two orders of experience by arguing that, as two forms of "energy," material facts and mental facts may naturally be built into the one system. This is begging the question at the outset. Upon what, then, shall he ground his position? He can furnish but the one argument. There is a physical system of things, and there obtains in it an order which we call that of cause and effect. No physical phenomenon appears to be without its cause. But there exist also mental phenomena, and these do not seem to belong to an independent system of their own. Are they to be left out in the cold, causeless, unaccounted for, unexplained? Perish the thought! let us break the physical system in various places and insert them at the gaps thus made.

Now why is it assumed that it is easier to connect the phenomena of the subjective order with the physical system of things when the latter is assumed to be broken here and there? Surely it must be evident that he who insists upon breaking the system is laboring under the delusion that a place must be made for mental facts as a place may be made for what is material — they must be *inserted somewhere*. When we realize that such an insertion is nonsense, we see clearly that the assumption that the physical system is broken is really gratuitous. We have no direct evidence that it is broken. We break it ourselves to make room for a new link in the chain. The new link cannot conceivably be inserted. Then what possible purpose can it serve to break the chain?

The truth is that an insistence upon the assumption that the physical order of things is not a complete and independent system invariably rests upon an unwillingness to regard the distinction between the subjective order and the objective order as a unique fact. We have seen [1] that even the parallelist is apt to fall back upon a material analogy, and to take it with literal seriousness, when he proposes to *explain* how it is that mental phenomena and physical are concomitant. To *explain* such a fact means to assimilate it to other facts, to show that it is not unique, to materialize it. And he who will extend the doctrine of the conservation of energy to mental facts explains the coming into being of

[1] Chapter XX.

mental phenomena by pointing out that they are not fundamentally different from physical phenomena, that the distinction between the subjective and the objective orders of experience may be set aside, and that all phenomena may be treated as though they belonged to the one order — which they do not.

Shall we, then, admit that the coming into being of mental phenomena is *causeless?* Certainly; but let us not be misled by an ambiguity. By the use of such an expression we should only mean that mental phenomena have no place in the physical system of things, and that they do not hold in a system of their own a place analogous to that held in the physical system by physical phenomena. We need not mean that mental phenomena are left at loose ends, unaccounted for, *unexplained* in any intelligible sense of the word. If the doctrine which I have urged in this volume be the true one, there is no mental phenomenon which may not be accounted for in the only way in which we have a right to account for mental phenomena.

It may be given its place and time of existence in the sense discussed in Chapter XXIV; it may be ordered by a reference to the physical system, if it cannot form part of it. To ask for an explanation of the fact that there are mental phenomena at all, is to ask a foolish question. To ask why this or that mental phenomenon comes into existence at a given moment may be a sensible question, but it is only a sensible question when the man who proposes it looks for his answer in the field of our general knowledge of mental phenomena and their relations to the physical world. The answer must consist in showing that experience has revealed that this is the particular case of concomitance that we have reason to expect under the circumstances.

Thus we see that the doctrine of the conservation of energy has really nothing to do with mental phenomena. What shall we say of the doctrine of evolution as applied to mind? Evidently we may not hold that mind is evolved from matter as a higher organism is evolved from a lower. We have seen that we must not place mind in the one chain of causes and effects with things physical. It is this truth that is emphasized in the statement that, "if evolution is to work smoothly, consciousness in some shape must have been present at the very origin of things." But is there any hope of making evolution work smoothly if we refuse to admit into our scheme any save mental phenomena? May we

fix our attention upon mental phenomena alone and still speak of an evolution of mind? We can do this only if we will follow Spinoza in the assumption of a complete system of mental phenomena analogous to the system of physical phenomena which we call the external world. The existence of such a system is, however, as I have said above, flatly contradicted by what we know of minds.

Must we, then, abandon the convenient expression "mental evolution"? Not at all. We must understand it and avoid being misled by it. There is no reason why we should not use the phrase to mark the fact that minds increasingly complex have been revealed by the organisms which have successively made their appearance in the course of the physical evolution of things; and there is no reason why we should not, upon a knowledge of what has been, base a reasonable expectation of what will be in the time that is to come.

CHAPTER XXXII

MECHANISM AND TELEOLOGY

To the doctrine set forth in the preceding chapter many persons will be prompt to urge objections. "What!" I hear them exclaim, "are we to deny to mental phenomena a place in the one causal nexus with material phenomena? Then let us admit at once that no mind can act upon matter and bring about changes in it, and let us also accept the unpalatable corollary that no mind can act upon another mind. Let us write the mind down an epiphenomenon, a shadow, an otiose thing, seeing all its own mischance, but unable to lift a finger to determine is own fate. Let us call man a physical automaton with parallel psychical states, and let us be penetrated with the conviction that he walks in a vain show. Perish all respect for that passive halo, that thing of functions merely decorative, the human mind, of which men have spoken in the past with such misplaced respect."

I must begin my answer to all such objections with the remark that, if the doctrine set forth in the preceding chapter really did imply the repudiation of all those experiences commonly described as instances of the action of mind upon matter and of mind upon mind, that doctrine would undoubtedly have to be abandoned. It is matter of common experience that we desire, will, and attain ends. The architect conceives a plan, and puts it on paper; the mason and the carpenter set matter in motion, and build a house; we see the house, we are pleased with it, and we buy it. The architect certainly framed his plan with an end in view; the artisans did not labor without a purpose; we take the house that we may live in it.

In answer to the question: *Why* did builder build, and buyer buy? we reply unhesitatingly: The one worked to get his wage, and the other paid over his money to have a home of his own. Our answer takes no account of the efficient causes of the actions in question; it concerns itself with the indication of *ends*,

and it contents the questioner, who regards human actions as satisfactorily explained when he is able to look upon them as means to the attainment of given ends.

He is little interested in the chain of physical causes and effects as such. Those links which lie in the human brain are unknown to him, and even were he much better informed than he is, it is inconceivable that this chain should in itself absorb his attention. His world is not merely a world of matter ; it is also a world of mind, and he is intensely interested in thoughts, feelings, the satisfaction of impulses. External things gain for him a peculiar value and significance when they are found to be related in certain ways to things mental. He shows his good sense in thinking of and speaking of his world in such a way as to emphasize those relations among his experiences which seem to him to be of the highest importance. He does so unconsciously and instinctively, and is apt to forget that it is possible to regard things from another point of view as well.

I have said that it is a matter of common experience that men form plans and attain ends. He who utterly repudiates this common experience, and denies that men form plans and attain ends, will justly be regarded by his neighbors as little better than a fool. But it must not be forgotten that it is one thing to repudiate common experience, and quite another to seek to arrive at a clearer comprehension of what it signifies, by the aid of a careful analysis.

For example, we are told that our neighbor arose at five o'clock in the morning, because the train was to leave at six ; that he took his luncheon with him, because he would be unable to procure anything to eat on the journey ; that he left directions with the servants, because the plumber would put in an appearance before his return. We understand quite well what we are meant to understand by such statements, and we know that they serve to express truth. If an officious bystander insists that they cannot be true, on the ground that an occurrence not yet existent cannot be the cause of a present occurrence, or on the ground that the mental cannot interact with the physical, we decide that his reading has been too much for his good sense.

The statements express truth ; it is silly to deny them, and it is silly to block the wheels of human intercourse by trying to express the same truth in some strange and unaccustomed way.

One will only be misunderstood for one's pains, and in all probability one will deceive oneself as well as others. Let the common expressions stand. They have long served their purpose, and our emotional as well as our intellectual adjustments to them are what they ought to be.

But this does not mean that the thinker ought not to strive to make very clear to himself the exact significance of such words as "purpose" and "end." If there is danger of falling into misapprehensions, if words appear to be used in more than one sense, if the truth that is conveyed by such expressions as those commented upon above is found to be a vaguely apprehended truth, it is surely desirable to subject the whole matter to careful criticism. The plain man undoubtedly has experiences in which the external world is presented to him ; he knows more or less vaguely what he means by material things. When the metaphysician endeavors to give a more exact account of what is meant by the external world, he does not repudiate these experiences, and declare the plain man's notions of the external world to be wholly untrustworthy. He recognizes the fact that it is just these experiences which must furnish the starting-point for his own investigations, and he sees that it is his duty not to deny, but to comprehend. It is within his province to point out definitely what we mean by space and time ; it is not within his province to call in question the assertion of a competent astronomer that a given star crossed the meridian at a given moment. In the same way, he must accept the world of purposes and ends revealed in common experience, but he must realize that such an acceptance does not absolve him from the duty of striving to comprehend the significance of what he thus accepts, and of assigning to purposes and ends their reasonable place in the world-order as a whole.

That it is not enough to dismiss the subject with an appeal to common experience must be evident to any one who has the least acquaintance with the history of speculative thought. How one is to conceive of the final cause or end of action, and of its relation to the efficient cause, has been a problem to the reflective mind for many centuries.

Is the *end* a *cause* at all ? Undoubtedly we sometimes speak as though it were. Do we not say that our neighbor rose at five o'clock *because* he was going to leave on the six-o'clock train ? This sounds Aristotelian. On the other hand, we sometimes

describe the same occurrence by saying that our neighbor rose early, *because* he had the *intention* of leaving on an early train — a turn of phrase which Spinoza would have regarded as preferable to the former. "What is called the final cause," he writes, "is nothing but human impulse itself, in so far as it is considered as the efficient or determining cause of something. For example, when we say that the living in it was the final cause of this or that house, we mean only that a man, because he formed a conception of the pleasures of domestic life, had an impulse to build a house. Hence, the living in it, in so far as it is considered as final cause, is nothing but this particular impulse, which, in truth, is the efficient cause; and it is regarded as the first, because men are commonly ignorant of the causes of their impulses."[1] "I will add," he complains in another place,[2] "that this doctrine of final causes simply turns nature upside down. It regards as effect what is really cause, and *vice versa*."

This is a protest against regarding *that which is not yet* as a cause of *that which is*. Can the non-existent be a cause? Can it produce anything? The living in a house comes after the construction of the house; how can it be a cause of the construction? The real cause, says Spinoza, is not the living in the house; that is effect, not cause. The cause is the *idea*, the human impulse, which works itself out in the production of the end.

In criticism of this criticism I must dwell upon two points. First, it should be remarked that the objection — one which has been made often enough since — is really an objection to the use of a word. If we decide that the word "cause" cannot properly be used except in speaking of efficient causes, then it goes without saying that final causes are not causes at all. Thus Spinoza insists that the final cause or end is not cause, but effect — which clearly indicates that he thinks the word "cause" should be used in only the one sense. He is certainly right in holding that that which is spoken of as end or final cause *may* also be regarded as an effect in the chain of efficient causes and effects. The living in a house is not a fact which has burst into being from nowhere; it has its antecedents.

But it seems somewhat dogmatic to insist that a word shall have but one meaning when long usage has granted it two meanings. From Aristotle down, men had distinguished between the effi-

[1] "Ethics," IV, Preface. [2] *Ibid.*, I, Appendix.

cient cause and the final, and had often done so with some degree of clearness. The distinction between the two was not always well grasped, but at least the distinction was recognized. It is not out of place to deplore the fact that one and the same word should be used to express two different ideas, nor is it out of place to point out that men are actually betrayed now and then into confusing the two ideas by the fact that the one word is used to express both. But to insist that one of the ideas shall be thrown away, or, at least, left without a word to express it, seems, as I have said, dogmatic, and it is certainly unreasonable.

However, Spinoza's protest is, to the reflective mind, of no little service in emphasizing the fact that final causes and efficient must not be confounded. When the distinction between them is grasped with sufficient clearness, it is seen that a number of apparent problems quite lose their problematic character. For example, the objection that the end cannot be a cause, since it has not yet come into existence, and the non-existent cannot be the cause of anything, falls away of itself. Of course, that which has not existed and does not exist cannot be the efficient cause of anything; but there is nothing in the world to prevent it from being the final cause, the *end*. The end is that which is to be; it would be absurd to make it that which has been. The whole force of the objection lies in the tacit assumption that a cause is a cause, and that, as such, it must antecede its effect.

The same assumption lends its force to the objection that the doctrine of final causes turns nature upside down, putting cause in the place of effect and *vice versa*. From the point of view of efficient causes, my getting up at five o'clock may be regarded as a cause of my departure in the train at six; but there is no reason in the world why, from the point of view of final causes, my leaving at six should not be regarded as the cause of my getting up at five. Nor should we wonder at the fact that the same occurrence should have both efficient cause and final cause. It would be remarkable were a day found to have two beginnings; it is in no wise remarkable that it is found to have a beginning and an end.

In the second place, I must call attention to the fact that, in the first extract given above, Spinoza was not a good Spinozist. He sets a man's conception of the pleasures of domestic life in the one causal nexus with the building of a house. In other words,

he puts facts mental and facts physical into the relation of efficient cause and effect, which is such heresy in a parallelist that we must assume that our author nodded in writing the passage.

However, I must not be tempted to delay over what has been said on the subject of final causes by the great men of the past. The question I have set out to discuss is: Shall the doctrine of mind and matter advocated in the preceding chapters be set down as repudiating final causes? as reducing the human mind to a shadow whose desires and purposes are without significance? as turning nature into brute mechanism — a thing to be feared, but in no wise to be loved? In treating this question I shall set forth the doctrine of final causes in typical modern form; and I shall then try to make clear that, when certain metaphysical misconceptions are set aside, — misconceptions the setting aside of which need not cause the least concern to the plain man, — the doctrine of final causes may be frankly accepted, as embodying truth, by one who approves the reasonings contained in this volume.

For the typical statement which I wish to set before the reader I turn to M. Paul Janet's admirable volume,[1] the clearest, the fullest, and in many respects the most satisfactory discussion of the subject that we have.

"The expression 'final cause' (*causa finalis*) was," writes M. Janet, "introduced into philosophic speech by the scholastics. It signifies the end (*finis*) for which one acts, or toward which one tends, and which, hence, may be regarded as a cause of action or of movement. Aristotle explains it thus: 'Another sort of cause,' he says, 'is the end, that is to say, *that in view of which* (τὸ οὗ ἕνεκα) the action is performed; for example, in this sense, health is the cause of taking a walk. Why does such an one take a walk? It is, we say, in order to have good health; and when we speak thus, we believe that we are naming the cause.'

"Let us examine closely the peculiar character of this sort of cause. Its characteristic is that, according to one's point of view, the same fact may be taken either as cause or as effect. Health is undoubtedly the cause of the walk; but it is also its effect. On the one hand, the health does not come until after the walk, and as a consequence of the same; it is *because* a certain movement

[1] "Les Causes Finales," quatrième édition, Paris, 1901.

has been executed by my will, and, under its direction, by my limbs, that the state of well-being has resulted; but, on the other hand, in another sense, it was to obtain this state of well-being that I took the walk; for without the hope, the desire, the anticipation of the benefit of health, perhaps I should not have gone out, and my limbs would have remained at rest. One man kills another: in a sense, the death of the latter has had as its cause the act of killing, that is, the act of burying a dagger in a living body, a mechanical cause without which the death would not have resulted; but, again, the act of killing has had as determining cause the will to kill; and the death of the victim, foreseen and resolved upon in advance by the criminal, has been the determining cause of the crime. Thus, a final cause is a fact that may, in a sense, be regarded *as the cause of its own cause;* as, however, it is impossible for it to be a cause before it exists, the true cause is not the fact itself, but its *idea*. In other words, it is *a foreseen effect* which could have had no existence had it not been foreseen."[1]

To this definition of final cause M. Janet sees that some will be inclined to offer objections. The definition is adjusted to the most striking instance of final cause which falls within our knowledge. Man clearly foresees ends, and consciously chooses the means to their attainment; but we cannot assume that the same conscious prevision presides over the instinctive actions of the brute; and still farther down in the scale we find the *tendency* of all organized matter to arrange itself in conformity with the idea of a living whole.

"Hence, reflective consciousness does not in fact exist everywhere where we find or think we find ends in nature; but, wherever we suppose such ends, we cannot but conceive of the final effect as represented in advance, if not clearly and consciously, at least in some way or other, in the agent which produces the effect. In order that a fact may be called a final cause, it is necessary that the whole series of phenomena summoned to produce it should be subordinated to it. This phenomenon, not yet produced, governs and commands the whole series, which would plainly be incomprehensible and contrary to every law of causality if the phenomenon did not have some sort of existence — an ideal existence — before the combination of which it is at once cause and result. Let us

[1] pp. 1–2.

say, then, taking up and correcting the definition given above, that the final cause, as given us in experience, is an effect which is, if not foreseen, at least *predetermined*, and which, because of this predetermination, conditions and commands the series of phenomena of which it appears to be the result. Hence it is, once again, a fact that may be regarded as the cause of its own cause."[1]

M. Janet maintains, with great justice, that we should never think of ends as existing in nature, were man not conscious of selecting ends and employing means to their attainment: "Experience presents us unmistakably, in a given case, with a real and certain cause, which we call the final cause: is it not legitimate to assume the same cause in analogous cases, with a degree of probability increasing or diminishing with the analogy itself? We are not passing from a thing of one kind to things of a wholly different kind; but, in the same general class, that is to say, within the realm of nature, given a certain number of homogeneous facts, we follow the thread of analogy as far as it will lead us, and up to the point at which it abandons us. This is, in truth, the inductive process that the human mind follows in the affirmation of final causes outside of ourselves."[2]

This analogical argument leads M. Janet far; it reveals to him the presence of final causes over a very wide field, and it brings him ultimately to the real goal of his inquiry, the proof that a Divine Mind is revealed in nature. As the reader will see later, I am in hearty sympathy with the general view of nature advocated by M. Janet, though I may differ from him in some details. That not merely the little world of man, but that the great world beyond him, is to be regarded as revealing mind — a Divine Mind — I feel impelled to maintain. That the argument may be carried so far, all are not prepared to admit. But there is no one who does not recognize the presence of final causes — I here use the expression without delaying to criticise it — at least somewhere in the realm that lies beyond the circumscribed field of conscious human activities.

Surely no one will care to deny that certain of the brutes sometimes fix upon ends and attain them by the employment of means, much as man does. And in the phenomena of instinct, and, beyond and below this, in a very wide circle of phenomena presented by living organisms, whether of a high or of a low order,

[1] p. 4. [2] p. 131.

we see something so analogous to the adjustment of means to ends with which we are familiar in the sphere of human activities, that it seems eminently natural for us to find in nature a wide distribution of *ends* and not merely of *results*. This way of contemplating the phenomena of nature is reflected in common speech, and even in the language of science, as one may convince oneself by the perusal of some standard text-book of physiology or of biology.

With the scope of the argument from analogy this chapter is not concerned. M. Janet is, as I have said, quite right in maintaining that the whole edifice rests upon the foundation, furnished by our experience, that man fixes upon ends and employs means. It is one thing to seek to discover what phenomena in nature may properly be described as ends, and it is another to strive to attain to a clear conception of the significance of the concept itself. This is our present task, and we can best perform it by studying the final cause in the most striking instance in which it can come before our contemplation.

When we come to examine closely M. Janet's account of it, we cannot but remark certain loosenesses of expression. Thus, we are told that it is characteristic of the final cause that, according to one's point of view, the *same fact* may be taken as cause or as effect. Health is the cause of the walk; it is also its effect. It is the latter, because health does not come until after the walk; it is the former, because, without the idea of health, the limbs would not have been set in motion.

Reflection upon this illustration compels us to enter a double objection to the statement that the *same fact may be taken as cause or as effect*. In the first place, health and the idea of health are by no means the same fact. The one is a fact in the physical world, and the other a fact in the realm of mind; they are not only two facts, but two facts belonging to different orders; and it is surely inadmissible to think of them and to speak of them so vaguely that they seem to melt into one. Spinoza emphasizes this objection.

In the second place, when we place the words "cause" and "effect" in a relation of contrast, we almost necessarily suggest that we have reference to the order of efficient causes and their effects — that we are using words in a natural and unambiguous sense, and are putting together what might be expected to go

together. It would, indeed, be strange could the same identical fact be at once cause and effect in an unambiguous sense. But that the same fact should be cause in one sense and effect in an unrelated sense is a truth not even worthy of remark. The same tiresome old rake may be at once "fast" and "slow" in senses of the word sanctioned by popular usage. The sentence under criticism appears to assume tacitly that a cause is a cause, and that the different senses of the word need not be kept so very clearly distinct. Spinoza recognized but one sense of the word "cause," and was led to deny the existence of final causes; M. Janet accepts the final cause, but he seems to assimilate it to the efficient. When one does this, one loses sight of its true nature.

That this confusion really is present seems to be made even more clear in the second illustration given. A man's death has had as its cause the act of killing; but the act of killing has had as determining cause the will to kill, and thus the death of the victim, foreseen and willed by the criminal, has been the determining cause of the crime.

What, precisely, does this mean? Does *determining cause* mean *efficient cause?* Apparently it does, and we are to understand that a certain mental phenomenon is the efficient cause of the act of killing, as the act of killing is the efficient cause of the death. But how can this justify one in concluding that "a final cause is a fact that may, in a sense, be regarded *as the cause of its own cause*"? Of which fact are we here speaking? Of a man's death. Has it been pointed out that this has been the cause of anything whatever? Not in the least. It has been pointed out that *the death as foreseen and willed*, i.e. *not the death itself, but the idea of it*, has been the efficient cause of something. Whence, then, the conclusion that the death is the cause of its own cause? Evidently, the conclusion is the result of an identification of the death with a certain other phenomenon from which it is numerically distinct, and which is regarded as the cause of the cause of the death. And the death is made a *final* cause for the reason that its identification with an efficient cause gives it an unmistakable flavor of causality, while its place at the end of a series of occurrences makes it impossible frankly to recognize this illegitimately transferred causality as efficient.

That the reasoning is not of the strictest M. Janet appears to recognize. He has arrived at the conclusion that a final cause is

a fact that may, *in a sense*, be regarded as the cause of its own cause, and he goes on to show that that sense is a very loose one: the death cannot be a cause before it exists, and hence the true cause is not the death itself, but its *idea*.

It would be impossible to bring out more clearly the fact that final causes and efficient are confused to the detriment of the former. Shall we accept as true without limitation the statement that a fact cannot be a cause before it exists? Surely not; this is true of efficient causes, but not of final. The final cause, the *end*, must come last. If it is to be a cause at all, it *must* be a cause before it exists. And what shall we say touching the statement that the true cause is not the fact itself, but its idea? Does this not deny the existence of final causes as flatly as ever they were denied by Spinoza? Does it not affirm that there is really no cause but the efficient, and imply that a man's death, to be a cause at all, must be an efficient cause of something? But what, then, becomes of the statement that a final cause is a fact which may be regarded as the cause of its own cause? It lapses absolutely: nothing can be the efficient cause of its own efficient cause, and we have denied real existence to causes of any other sort.

I shall not delay to discuss the emendation of the definition of final cause suggested by M. Janet. What can it mean to say that a final cause is a *predetermined* effect, which, in virtue of this predetermination, *conditions* and *commands* the series of phenomena of which it appears to be the result? Is not every effect of an efficient cause predetermined? And what is it to condition and command a series of phenomena? Is it to condition them as the efficient cause conditions its effect? This the final cause should not do; and yet, apparently, this the final cause must do, for M. Janet concludes that, in virtue of this conditioning, the final cause may be regarded as the cause of its own cause.

It must be evident to the reader that the final cause, as such, the *end*, has been virtually abandoned by M. Janet, and something else has been put in its place. This something is an efficient cause of a certain kind — *an idea;* and it is with the proof that such ideas exist and must be appealed to in any explanation of the phenomena of nature, that M. Janet concerns himself in his book.

Briefly stated, his argument is as follows: Causes must not

be multiplied unnecessarily. Where a mechanical explanation suffices, we need not assume final causes; if it sufficed everywhere, they would not have to be assumed at all. But mechanism will not suffice to explain the phenomena of nature; hence, we must have recourse to final causes (*i.e.* to ideas).[1]

M. Janet points out that there are in nature an indefinite number of relatively independent chains of causes and effects. Where these cross each other, we have complicated effects which we attribute to "chance." I may, in gambling, bet upon the red or the black; I may win; it is clear that my choice has not influenced the turning up of a given card, nor has the disposition of the cards affected my choice. The harmony which has resulted is a chance harmony. But when a given coördination of phenomena has recurred repeatedly, when the coördination is a constant one, a cause must be sought, not merely for each phenomenon concerned, but for the constancy of the coördination. This every one recognizes. When we turn our attention to certain striking instances of such coördination, for example, when we consider certain mechanisms constructed by man, we see that a reference to final causes is indispensable; the coördination can only be explained by the fact that *an end was held in view*. This furnishes us with a type of explanation which serves to piece out the deficiencies of the mechanical explanation of nature.[2]

Now, the question before us is, how much of M. Janet's doctrine must a man reject, when once he has been led to accept the parallelistic view of mind and matter which I have advocated?

For one thing, he must reject the confusion of the final cause proper, the *end*, with *the idea of the end*. These should be distinguished by every one, but their confusion appears to be peculiarly unpardonable in one who relegates ideas and material things to different orders. When one has rejected this, one has lost nothing save the misleading statement that something is to be regarded as the cause of its own cause — in other words, one has not lost, but gained.

In the second place, he must reject the notion that ideas,

[1] Preface, iii, v.

[2] Chapters I, III, V. I am here only concerned with the argument for the assumption of final causes in the first instance. Whether they may ultimately be regarded as embracing all nature is another question.

mental phenomena, must be assumed to play the rôle of efficient causes of a certain type, and to supplement the deficiencies of mechanical causes. He cannot patch up a machine with immaterial patches. Does it follow from this that mental phenomena are not to be assumed, and that the conceptions *purpose* and *end* are to be eliminated from our view of nature? Not in the least. What has been rejected need cause no concern to the plain man, for his world of purposes and ends remains unshaken. Nor is the analogical argument, upon which M. Janet has depended for the extension of the realm of purposes and ends, affected in the least.

This ought to become evident to one who grasps clearly the distinction between efficient causes and final, and the significance of that distinction. The distinction, of course, exists in common thought, but, like other distinctions drawn in common thought, it is somewhat vaguely apprehended. The plain man recognizes that there is a physical order of causes and effects. The finger on the trigger ignites the powder, the bullet leaves the gun, it reaches a certain point, and a man is laid low. The same man recognizes that there is also a different way of viewing the occurrence, in which the fall of a man is related in a peculiar way to an *idea*. It is no longer merely a *result*, it is an *end*.

Now, the order of physical causes is imperfectly known to any one; to the plain man it is very imperfectly known; and, in certain instances, the fact there is such an order may be quite overlooked. What that order may be is always a legitimate subject for scientific investigation. A man raises his finger; he is conscious that he thought of doing so, and he may hold that his intention was the cause, and the immediate cause, of the motion. The physiologist is not content with his view of the case, but constructs for him a complicated chain of physical causes and effects of which he had no consciousness. The intention is no longer directly related to the motion of the finger — it is referred to some motion in the brain. It still remains true that intention and motion are referred to each other; they still remain purpose and end, but the peculiar causal relation which was supposed to exist between them has been found not to exist. Investigation has revealed an order of causes the existence of which had been overlooked.

Shall our plain man, after his conference with the physiologist, correct his former view only so far as to maintain that the inten-

tion is not the proximate cause of the movement of the finger, but is the proximate cause of the motion in the brain — a cause as the latter is the cause of what succeeds it? It is open to him to do so, and it is undoubtedly what he inclines to do. But it should be remarked that his first impression of the relation of intention and movement has been found to be erroneous, and has been replaced by a view which is the result of some scientific investigation. The second position which he takes is not the result of a direct appeal to experience, if by a direct appeal to experience we mean an appeal to an experience unenriched by the fruits of scientific thought. It is really an appeal to science, and whether it is wise to take and keep this position is a question to be decided, not by the plain man, but by the scholar, for it is only the latter who is in a position to judge whether what is known of mental phenomena and of physical justifies us in regarding them as standing in the relation indicated. The considerations brought forward in certain of the preceding chapters[1] seem to make it clear that the relation between intention and movement cannot be a causal relation at all, in the usual sense of the word cause, *i.e.* they seem to show that it is absurd to connect ideas and movements as one may connect movement with movement.

I beg the reader to observe that the plain man found in his experience at the outset the relation of *intention* and *end*. He intended to move his finger and his finger moved. He has reason to believe that whenever he has a similar mental experience his finger will move. This is to him a very important fact, and its significance for his world of interests and desires cannot be overestimated.

Now, when he has taken counsel of the physiologist, and has become, as to speak, a Cartesian, recognizing a series of physical causes resulting in the movement of the finger, but placing at the head of the series his will to move, his intention, — when he has done this, he has left unaffected the relation of intention and end which he found in his experience in the first instance. He has only modified his conception of *how intentions and ends are connected with one another;* he has come to a clearer conception of the world-order, and he finds in it, as before, the relation in which he is so much interested.

[1] Chapters XVII to XXIV.

Suppose that he goes farther, and becomes a parallelist. Do intentions and ends disappear from his world, or even change in any manner their proper character? Is the relation of intention to end to be regarded as less constant, as less to be depended upon?

Surely not. The man has attained to a much clearer idea of the world-order. He no longer confuses mental phenomena and physical, throwing them together as though they did not belong to distinct classes. But his world is emphatically a world of matter *and mind*, and he has no excuse for overlooking any significant relations among the phenomena of which it is composed. If he refuses to place an idea in the one chain of causes and effects with a series of movements in matter, he, nevertheless, regards the idea as holding to certain movements in matter — to brain changes — a relation as uniform and unvarying as that between physical causes and their effects. The man who is not a parallelist connects intentions with ends; so does the parallelist; and, when he is rightly understood, he is found to cast no doubt whatever upon the uniformity of the relation.

But in the argument for final causes given above — it might better be called the argument for *ideal* causes — certain ideas were assumed to exist on the ground that certain coördinations of phenomena, given in experience, necessitated the assumption of such ideas, as sufficient cause. If one maintains that ideas cannot be the *causes* of material changes, does one not lose one's reason for assuming the ideas? Does not the general argument for final (ideal) causes lapse?

I beg the reader to recall to mind what I have said in discussing the existence of other minds and their distribution.[1] The argument for other minds is quite independent of the assumption that mental phenomena stand in causal relations with material. Of course, if a man assumes that intention and end, idea and movement, as he observes them in his experience, are related as efficient cause and effect, it is but natural for him to generalize and to maintain that the ideas which the argument from analogy leads him to assume, when he contemplates certain complexes of phenomena, must stand in a causal relation to those complexes. But he whose reflections upon mind and matter have led him to correct the first hasty interpretations of common thought, may maintain that his own intention, his idea, is not related to his

[1] Chapters XXVII and XXVIII.

end, to the movement, as cause is related to effect, but is to be regarded as the concomitant of what is so related, of certain brain-changes which are themselves unknown. Upon this basis he may generalize precisely as did the other man. He does not assume ideas to piece out the deficiencies of a mechanism, but he does assume ideas; and there is, as I have said, nothing in his doctrine that tends to render less significant the relation of intention and end.

The reasonings of the parallelist need really cause no concern to the plain man. It does not matter one whit to him whether his idea stands in a strictly causal relation to a given motion or series of motions in matter, or does not. What interests him is to know that the relation of intention and end is a constant one and may be counted upon with confidence. To be sure, when he is told that his idea stands in no causal relation to his act, he is apt to feel misgivings. When he is called an epi-phenomenon, a shadow, an otiose thing, his feelings are outraged. It is only natural that they should be.

The application of these abusive epithets necessarily suggests that his idea, his plan, is a thing without significance. He forms a plan; he carries it out; there are changes in the physical world which would not, he is sure, have taken place had he never formed the plan. Is he to be told that this planning has had nothing to do with the result? Does not every one say: I went, because I decided to do so? I built the house, because I wished a house? Must this *because* be dropped out altogether, and must his own activity be repudiated?

I insist strenuously upon the fact that, in rejecting all such insinuations, the man is entirely in the right. It is of the utmost importance to bear in mind that, if the parallelistic doctrine which has been advocated in this volume is correct, and if the phenomena of the subjective order and those of the objective order do correspond, as I have maintained, then it is quite true that, *if the man had not formed a plan, the changes in question would not have taken place in the physical world.* This does not mean that his plan and those changes stand in the one causal nexus. But the statement is literally true, nevertheless: had he not formed the plan, the changes would not have taken place. The relation is a constant one; as constant, if the doctrine of parallelism be true, as any relation between physical causes and their effects.

May we go farther, and say: The changes took place *because* he formed the plan? Surely we may, if our purpose be to point out, by such a mode of speech, the constant relation between plan and accomplishment — to dwell upon the indispensableness of the plan. Without some such form of expression we cannot get on; and I have indicated above that it is foolish to torture common speech until it becomes a stumbling-block and an offence. We are totally ignorant of the brain-changes which, in the physical order, correspond to the formation of the plan, and which stand in a causal relation with the accomplishment. It is of no use to refer to them, when we are trying to connect phenomenon with phenomenon in a serviceable way. But the plan is open to inspection, it is known, it is indispensable to the accomplishment; and the plain man is right in objecting to any form of expression which minimizes its importance.

Perhaps it will be remarked: Ah! but *is* it indispensable? Is it not, at least, conceivable, since plan and accomplishment do not stand in the one causal nexus, and since the series of causes that leads to the result is complete without the plan — is it not, at least, conceivable that the result might have been produced without any plan at all? I answer, it is not conceivable in the only world with which we have to do, the world of matter and of minds which is revealed in our experience. What is possible and impossible must be discovered by an investigation into the constitution of this world. It is not profitable to speculate regarding the possibility that, in worlds differently constituted from ours, physical results of the sort which we justly regard as indicative of the existence of purpose, might be produced and yet have no such significance.

To most men the denial that there is a causal relation between phenomena seems tantamount to the assertion that the relation between them is an accidental one. It is for this reason that the denial that plan and accomplishment are causally related seems to the plain man to make his plan a thing of little moment. But, if the parallelist is right, there are relations — the relations between mental phenomena and physical — which are not causal, and yet which it would be absurd to call accidental. They are as much to be depended upon as any relations which obtain between phenomena; they belong to the very constitution of the world in which we live, and to overlook them or to suppose them less

stable than they are, is seriously to misconceive the nature of that world.

Both parallelist and plain man must admit that it is not every plan that is followed by accomplishment. Even the man who desires to move his finger may find himself unable to do so, for various reasons. But the probability that, in a given instance, plan will be followed by accomplishment is just the same for the plain man and for the parallelist. The former need have no hesitation in allowing the latter to open his eyes for him; he is in danger of losing absolutely nothing save a few misconceptions which it will in no wise hurt him to lose.

When his eyes are once thoroughly opened he will see that it is wholly unjust to apply to mental phenomena such offensive epithets as "epi-phenomenon" and "shadow." They necessarily suggest that the mind is not active, that it *does* nothing. Before making so serious a charge as this, it is surely incumbent upon the philosopher to investigate carefully the meaning of such statements as that, in a given instance, a man is active, or does something, and that, in another instance, he is passive, or has something done to him.

In an earlier chapter[1] I have pointed out that, in the realm of the purely physical, the notions of *activity* and *passivity* have no place. They must be carefully distinguished from those of cause and effect. A man is hurrying to a railway-station; that is, a complex system of atoms, which is, as a system, constantly undergoing some change, is at the same time as a whole changing its space-relations to other systems or groups of atoms. The man is struck down by a falling tile; that is, the above-mentioned group of atoms has undergone a considerable change in consequence of its having come into a certain relation with a given group of atoms, and a certain series of motions has been brought to an end. There is no moment at which the actual state of affairs — the position and motion of every atom within and without the man — may not (theoretically) be accounted for as the result of mechanical causes; and there is no moment at which the changes which are taking place can be referred wholly to his body or wholly to what is outside of it.

As he runs, he is not independent of the ground upon which he treads; when he falls, the tile cannot be regarded as the sole

[1] Chapter XV.

cause of the change. He falls as much because he is what he is and where he is, as he does because the tile is what it is and has been moving as it has. From the point of view of mechanics, we have a series of changes, and we have causes of those changes. Those causes always embrace both the man and his environment. Hence, it is absurd to say that the man is *the* cause of the advance up the street, and the tile is *the* cause of the fall to the ground. It is absurd, that is, to speak thus when one is attempting to be scientifically accurate; to avoid the statement when common intercourse makes it convenient to use it, savors of pedantry.

We do not, then, regard something as active, as doing this or that, merely on the ground that it is an efficient cause; nor do we regard it as passive, as suffering, as having something done to it, merely on the ground that it is an effect. In its encounter with the tile, the man's body is a concurrent cause of its own demolition — or, to speak more accurately, its being what it is at the one instant is a concurrent cause of its being what it is at the next. It is cause as well as effect; cause at the one instant and effect at the next. What, then, can we mean by calling the man passive? Why do we distinguish so clearly between the headlong chase and the sudden fall?

We draw the distinction simply because we do not remain within the realm of the purely physical. To physical changes we relate mental phenomena, and we make classifications which would be impossible but for this. When a man is occupied in catching a train, when he is, as we say, active, we recognize that he has a *purpose* and an *end*. That is to say, we recognize that what is in his mind is indispensable to the coming into being of a certain physical condition of things. When he is crushed by a falling tile, we know that the condition of things is not to be referred to an idea in his mind. Something has happened to the man; he has not done it himself — these words mean nothing, when all reference to his mind has been left out of account.

Now, we have seen above that the relation of plan and accomplishment, of purpose and end, is not done away with in any manner, when the plain man attains some degree of enlightenment, and no longer regards his volition as the proximate cause of a bodily movement. We have also seen that, when he becomes still more enlightened, and refuses to recognize mental phenomena as *causes* at all, this same relation, in which we are necessarily so

deeply interested, remains unaffected. *And now that we have seen that our notions of activity and passivity draw their whole significance from this relation of purpose and end, and are never to be confused with the notions of cause and effect, ought we not to recognize that it is mere misconception to charge the parallelist with the misdemeanor of making the mind inactive?*

When is a man *active?* When does he *do* something? Is it not when mental phenomenon and physical fact stand in the relation of plan and accomplishment? Can anything be active save as it has a mind? We have seen that the word has no meaning in the realm of the purely physical; and a little reflection makes it plain that when men use it in speaking of material things they are employing a conception borrowed from a different sphere. There is a tincture of animism in common thought, and from this even the philosopher finds it difficult to free himself. Physical causes can be regarded as active only when they are more or less dimly conceived as endowed with minds.

The truth is that the phenomena of our universe can be contemplated from more than one point of view. One may fix one's attention upon the order of physical causes and effects, and note that mental phenomena stand to certain of these in a relation conveniently symbolized under the figure employed by the parallelist. But any given mental phenomenon is not to be assumed to stand only in relation to the particular physical occurrence to which the physiologist directly refers it. Ideas are, through brains, related to the whole physical and mental universe; and, when these relations are taken into account, a new world of distinctions has its birth. *This is the moral world of aspirations, of purposes, and of ends.* Nothing that the parallelist can say should be construed as an attack upon it. Nothing for which our experience vouches is more real and undeniable. It is an aspect of the one real world consisting of matter and of mind — it is as real as is that world; and he who desires something more real is capable of crying for what is rounder than the circle.

Thus, all those experiences which we are in the habit of characterizing as instances of the action of mind upon matter, and of one mind upon another mind stand unshaken. Men form plans, and carry them out in action. They set before themselves ends, and they attain them. They come to a knowledge of the existence of other minds, and they communicate with such minds.

Minds are not epi-phenomena, they are not shadows, they are not otiose. All these things the parallelist not only may say, but must say, if he be a good parallelist, and understands the significance of his own doctrine.

It is necessary that I should emphasize one point before bringing this chapter to a close. It has been pointed out above that an *end* is different from a mere *result* in that it is a phenomenon referred, not merely to antecedent physical phenomena, but to an idea. I beg the reader to observe that I have used the word "idea" in no equivocal sense. I have been at great pains to point out what we mean by ideas or mental phenomena, and how we are to conceive of the relation between mental phenomena and the material world.[1] I have indicated that an unconscious idea is an absurdity.[2] It follows that the recognition of *ends* in nature must always imply the recognition of *consciousness* somewhere.

To this some will demur. Has not the philosopher maintained again and again that nature may seek and attain her ends unconsciously — that there is such a thing as an immanent finality which does not imply consciousness? When a mutilated newt reproduces its curtailed member and grows once more into the form proper to a creature of its kind, we have what appears to be the carrying out of a plan or purpose, the realization of an intention. To suppose the batrachian mind capable of such deliberate foresight that the result may be attributed to it as *its* end seems absurd. No one supposes that the creature plans and attains as man plans and attains when he carves a statue or builds a house. It does not seem, then, that what undoubtedly appears to be an end, can be referred to the consciousness of the animal itself. And if a man cannot see his way clear to accepting the belief in a Divine Mind, must he, on that account, deny that a plan is realized, that an end is attained? Are not the facts such as to warrant him in asserting that Nature is seeking the reproduction of a type, and unconsciously strives to attain an end?

To this I answer as follows: He who says that Nature *seeks* or that Nature *strives* is using expressions which find their significance in a world not purely physical. If they are carried over to the merely material, it is by way of metaphor, and one must not be misled by one's metaphors. A man raises his gun and a bullet reaches the target. We relate this result as end to an idea in

[1] Chapters XXIII and XXIV. [2] Chapter XXX.

his mind. It is, however, but one out of an indefinite series of physical consequences which follow the pulling of the trigger. The man who fired the gun may be charged with producing the whole series, if he may be charged with producing a single member. Can we say he *sought* to produce the series? Was it his purpose to have the bullet pass through a spot three metres in front of the target, two metres in front, one metre in front? Did he aim to heat the target by the impact of the bullet, or to stir the air which lay in its path? It is absurd to say that he sought to do these things; these are results, not ends. In the whole physical series we find but one term which may properly be called an end. It is the one term which is represented in his mind by an idea; the term which stands to that idea in the relation of accomplishment to plan. It is this relation, and this relation alone, that distinguishes this term from all the rest, and that gives it a claim upon the attention of the ethical philosopher, as well as upon that of the physicist.

If we overlook this relation, this term becomes at once as insignificant as the most insignificant of those which have preceded it or of those which may follow it to the end of time. It is useless to attempt to define an end in any other way than by a reference to this relation. Every physical fact is *predetermined* by the physical causes which have produced it, and the number of concurrent causes which have a share in the result may be enormous. If a given fact recurs repeatedly, and if a multitude of distinct causes appear to be concerned in its production, it is absurd to attribute the constantly recurring fact to "chance." But when we say all this, we have not shown that the fact is to be regarded as an end. Death and dissolution are as universal as birth and growth, but men do not incline to regard death and dissolution as the end of the development of the organism. Some facts they tend to look upon as ends, and some they do not. It is only from one point of view that their principle of selection becomes intelligible.

As I have said earlier in this chapter, I am not now concerned with the scope of the argument which passes from purpose and end as revealed in the realm of human activities to purpose and end as revealed throughout the realm of nature. That men do follow the thread of analogy, and interpret nature after a fashion suggested by their knowledge of man, there can be no doubt. They

carry over to a broader field the conceptions of purpose and of end. And I beg the reader to observe that he who speaks of nature as seeking her ends unconsciously is at once admitting and denying this analogy. If a given physical fact beyond the realm of human activities bears to the facts which lie within that realm a sufficiently close analogy to warrant us in regarding it as an *end*, it is a fact which we are warranted in referring to an *idea*, to *consciousness*. To retain the notion of end and throw away the notion of purpose is to retain the notion of *below* and throw away the notion of *above*. One cannot blow hot and cold in this fashion. It is quite permissible to declare the supposed analogy a false one ; but then one must abandon the conception of end as well as that of purpose.

I hope I have succeeded in making clear in the preceding pages that the world in which mechanism reigns supreme and the moral world of purposes and ends are not and never need be at war with one another. It is not necessary to shatter the former in order that, upon its ruins, we may base the stately structure of the latter. There are not really two worlds ; there is but one, and that one may be contemplated now under this aspect, now under that. I should think this view of the case would be welcomed as a relief. It relieves one from the secret hope that the labors of the man of science will be in vain ; that his efforts to prove the world of matter and motion the orderly thing he suspects it to be will be doomed to disappointment. It saves the timid man from the unethical temptation to rejoice in human ignorance, and to regard those who would enlighten him as heralds of misfortune. The world of matter and of motion is not our enemy, but our friend ; we cause ourselves gratuitous unhappiness when we mistake its face.

CHAPTER XXXIII

FATALISM, "FREE-WILL," AND DETERMINISM

LAIUS, king of Thebes, was warned by an oracle that there was danger to his throne and to his life if his infant son were allowed to grow up. The child was delivered to a herdsman with orders for its destruction. The herdsman pierced its feet, with the intention of exposing it to the elements on Mount Cithæron; but the little creature did not meet this cruel death; it was given to a shepherd, who carried it to King Polybus of Corinth, and by him the child was adopted and called Œdipus.

Long after these events, Œdipus, who had arrived at man's estate, learned from an oracle that he was destined to kill his father. He left the kingdom of his reputed father, Polybus. In a narrow way he met Laïus, who, with an attendant, was driving to Delphi. Œdipus refused the supposed stranger the right of way, and the king's attendant retaliated by killing one of his horses. Œdipus, furious at the deed, slew both master and man. Thus did Laïus and Œdipus, puppets in the hand of a higher power, fulfil the oracles against which they had risen in rebellion.

The story stands as an admirable illustration of the fatalist's view of things. Certain ends are fixed; they will be brought about, whatever may happen. We know that if Œdipus had taken another road, he would still have met Laïus sooner or later. The man was doomed; his death was a thing allotted (*εἱμαρμένη*); it was predicted (*fatum*).

In the Greek literature we find two conceptions of fate. "On the one hand, Fate was a decree, dependent for its effectiveness upon the divine will. On the other hand, it was personified, and conceived of as an independent principle controlling the acts of gods and of men."[1] In the "Iliad," for example, success and failure of Greek and Trojan are represented as decided, not by

[1] See Alexander's "Theories of the Will in the History of Philosophy," N.Y 1898, pp. 8 ff.

the actors on the stage, but by a power behind the scenes. Given a god who has made up his mind to save Hector or Achilles at all costs, the independent actions of Hector and Achilles become of little significance. The struggle is really a struggle between protecting divinities, and the decision of Zeus appears to be the final court of appeal. However, this court cannot be regarded as ultimate in every instance. When Zeus is asked to save Sarpedon, he refuses on the ground that his death is fixed by Fate.

The conception of Fate is not necessarily an irreligious one. Whether Sarpedon be doomed by Zeus or by some power above Zeus, we have fatalism, provided only the agency of Sarpedon himself and of his fellow-actors be regarded as having no real bearing upon the result. To the Stoic *εἱμαρμένη* was identical with *πρόνοια* or Divine Providence. The *fatum mohametanum* which Christians have condemned in Moslems is anything but an irreligious doctrine. It is but an insistence upon the fixity of the Divine Decrees. And although we are not accustomed to use the word "fatalism" in speaking of the doctrine of the election of the individual soul which has obtained in the Christian Church, we are compelled to admit that some of the forms which it has taken in the past make of the doctrine of predestination nothing less than a fatalism.

Thus, Augustine tells us that comparatively few men are to be saved. Much the larger part of humanity will be damned: "*praedestinati sunt in aeternum ignem ire cum diabolo.*" For these Christ did not die; and did the Church know who they are, it would not pray for them. They have never been in a position to choose the good, for the free-will granted to Adam was lost in the first sin, and lost for all. Since then, men have been free to do wrong, but not free to do right. The elect have been chosen as subjects to exhibit God's mercy, and the others have been made examples of God's justice. Shall not the potter make of the clay what he will? He has a perfect right to throw away the whole lump, and we should be devoutly thankful that it has pleased him to save some.

Of course, the doctrine of predestination may be so expressed as not to be a fatalism at all. It may recognize that the will of the individual is not without some share in the event which absorbs its attention. It may be a *determinism*, that is to say;

and what it means to be a determinism I shall set forth a little later. But here I wish to insist that the peculiar way of looking at things which characterizes the fatalist does not belong by prescriptive right to the irreligious man, to the pagan, to the Moslem, or to the Christian. A man belonging to any one of these classes, may, if he be sufficiently unwise, become a fatalist. He may dislike the word, and may avoid its use, except when he is speaking of men who hold opinions which he strongly reprobates. And yet, when we examine his thought, we may see that what separates him from the objects of his disapproval is not their fatalism, but certain other convictions which have no necessary connection with it. It is well to remember that it is quite possible to be a fatalist without believing in a *blind* fate, and without frothing about one's "star" or one's "destiny."

To be a fatalist it is only necessary to regard ends as fixed, while holding that the means, which might be expected to lead to their realization, are a matter of indifference. Fatalism emphasizes the helplessness of man, and maintains that his lot is determined independently of his own action. The oracle predicts that Œdipus will be the death of Laïus, but nothing is said of the way in which that disaster will be ushered into existence. The whole story leaves us with the impression that neither of the actors in the tragedy is really an actor — that neither contributes to a result which is fixed quite independently of all he may elect to do. Mohammed exhorts his followers to fight bravely, assuring them that "no soul can die except by permission of God, and according to what is written in the book that contains the determinations of things."[1] This gives the lie to the proverb that he who fights and runs away may live to fight another day. It places the warrior and the stay-at-home upon the same basis, and utterly condemns all modern methods of life insurance. There is no danger in going to war, for what mortal can render untrue what is written in the book which contains the determinations of things? And as for Augustine, some passages from his pen arouse in the reader a certain wonder that their author could have regarded it as at all necessary for either elect or non-elect to feel any sense of responsibility touching an event so palpably beyond man's jurisdiction.[2]

[1] Koran, Chapter III.

[2] *E.g.* "The City of God," XXI, 12, 24; "Encheiridion," 98, 99.

The influences that have inclined men to fatalism are not difficult to trace. Primitive man has necessarily forced upon his attention the fact that a vast number of things occur in nature over which he has no control whatever. The wind, the rain, the inundation, the earthquake, the drought that parches his crops, the dread visitations of disease — before these and such as these he is as a straw on the surface of a stream, or as a flying leaf. He must accept what is allotted to him, and good or evil fortune comes down upon him independently of his own exertions. With progressive enlightenment his horizon widens, and his helplessness undergoes some diminution. But, however far man may progress, his condition is always such as to keep him mindful of the fact that the course of his life is, at least in large part, decided for him by something external to himself.

The emphasis laid upon this varies with individuals and with communities. Individual temperament, social characteristics, institutions, traditions, all make their influence felt. The trend to fatalism remains the same in men of a certain type, even when their views of nature differ widely. One may be so impressed by the conception of the Mechanism of the Universe as to refuse to man his rightful place in the world. On the other hand, one may be so penetrated with the conviction of the Majesty of God, that a human unit becomes to one scarcely a thing to take into account. Atheist and theist alike may exaggerate the impotence of man, and many dissociate end and means in an unreasonable fashion. Man is weak; he is a speck in the illimitable system of the universe; but he exists and he acts nevertheless. It is not fatalism to recognize that his sphere of action is limited; it is fatalism to deny that he has a hand in those things for which experience seems to show that he is, at least in part, responsible. We may freely admit that our utmost efforts will not prevent the moon from circling around the earth as she always does; but if we maintain that the actions of Œdipus and the actions of Laïus have no bearing upon the lot of Œdipus and of Laïus we talk nonsense.

Thus, it is by no means an inexplicable thing that men should become fatalists. But it is clear that fatalism is an unreasonable doctrine, and that the dissociation of end and means characteristic of it indicates a very imperfect comprehension of the world-order of efficient causes and effects. The fatalist does not make every-

thing a predetermined end ; he selects what seems to him important, and he leaves at loose ends what seems insignificant. The death of Laïus was predicted by the oracle. Laïus was a king, and worthy of such honor ; but the servant and the horse seem to have lost their lives accidentally. The encouragement to fight bravely, in view of the fact that "no soul can die except by permission of God, and according to what is written in the book that contains the determinations of things," must emanate from and be addressed to an illogical mind. If it be true that each death is thus recorded in advance, it is not worth while to fight at all, for one cannot by fighting hasten the death of a single enemy. Only he who arbitrarily enters certain names in that book, and forgets to enter others, can take any comfort in the exhortation.

Fatalism is, thus, a thoroughly unreasonable doctrine. In the stream of things it isolates this fact or that and makes it independent of its setting. From the point of view of ethics the doctrine is strongly to be condemned. He who proclaims that ends are fixed independently of means does all that in him lies to paralyze the energies of his hearer. It is quite true that men imbued with fatalistic beliefs have at times acted with desperate energy, but this only means that men have at times been desperately illogical. Their doctrine is an absurd one, and its influence cannot but be harmful in the long run.

It is of the utmost importance to remember that fatalism is not a scientific doctrine. An insistence upon this point is the more necessary in view of the fact that a multitude of persons confuse fatalism with determinism. But fatalism is the doctrine of the ignorant and superstitious man, who has not yet risen to the conception of a world-order. It is just his arbitrary view of things that it is the concern of the man of science to abolish in favor of something more enlightened.

So much for fatalism. Now let us examine the doctrine which we usually find contrasted with it, the doctrine of "free-will."

Democritus of Abdera had taught that the elements of the world are atoms and void space. The atoms differ from each other in size, shape, and position, and they are in motion. Void space, atoms, and motion are eternal ; there is no *chance*, nothing happens without a cause ; the clash of the atoms has resulted necessarily in vortices which have grown into worlds. Perhaps Democ-

ritus taught that the original motion of the atoms was a fall through space, and that the larger and heavier, falling more rapidly than the others, drove them to the collisions which had this happy result, but there is some uncertainty upon this point.

The atomistic doctrine was taken up and somewhat modified by Epicurus, the father of such as believe in "free-will." How he conceived a rain of atoms and the origination of a world is vividly set before us by his disciple Lucretius: —

"When bodies are borne downwards sheer through void by their own weights, at quite uncertain times and uncertain spots they push themselves a little from their course: you just and only just can call it a change of inclination. If they were not used to swerve, they would all fall down, like drops of rain, through the deep void, and no clashing would have been begotten nor blow produced among the first-beginnings:[1] thus nature never would have produced aught.

"But if haply any one believes that heavier bodies, as they are carried more quickly sheer through space, can fall from above on the lighter and so beget blows able to produce begetting motions, he goes most widely astray from true reason. For whenever bodies fall through water and thin air, they must quicken their descents in proportion to their weights, because, the body of water and subtle nature of air cannot retard everything in equal degree, but more readily give way, overpowered by the heavier: on the other hand empty void cannot offer resistance to anything in any direction at any time, but must, as its nature craves, continually give way; and for this reason all things must be moved and borne along with equal velocity though of unequal weights through the unresisting void. Therefore heavier things will never be able to fall from above on lighter nor of themselves to beget blows sufficient to produce the varied motions by which nature carries on things. Wherefore again and again I say bodies must swerve a little; and yet not more than the least possible; lest we be found to be imagining oblique motions and this the reality should refute. For this we see to be plain and evident, that weights, so far as in them is, cannot travel obliquely, when they fall from above, at least as far as you can perceive; but that nothing swerves in any case from the straight course, who is there that can perceive?

[1] *I.e.* the atoms.

"Again if all motion is ever linked together and a new motion ever springs from another in a fixed order and first-beginnings do not by swerving make some commencement of motion to break through the decrees of fate, that cause follow not cause from everlasting, whence have all living creatures here on earth — whence, I ask, has been wrested from the fates the power by which we go forward whither the will leads each, by which likewise we change the direction of our motions neither at a fixed time nor fixed place, but when and where the mind itself has prompted? For beyond a doubt in these things his own will makes for each a beginning and from this beginning motions are welled through the limbs. See you not too, when the barriers are thrown open at a given moment, that yet the eager powers of the horses cannot start forward so instantaneously as the mind itself desires? the whole store of matter through the whole body must be sought out, in order that stirred up through all the frame it may follow with undivided effort the bent of the mind; so that you see the beginning of motion is born from the heart, and the action first commences in the will of the mind and next is transmitted through the whole body and frame. Quite different is the case when we move on propelled by a stroke inflicted by the strong might and strong compulsion of another; for then it is quite clear that all the matter of the whole body moves and is hurried on against our inclination until the will has reined it in throughout the limbs. Do you see then in this case that, though an outward force often pushes men on and compels them frequently to advance against their will and to be hurried headlong on, there yet is something in our breast sufficient to struggle against and resist it? And when too this something chooses, the store of matter is compelled sometimes to change its course through the limbs and frame, and after it has been forced forward, is reined in and settles back into its place. Wherefore in seeds [1] too you must admit the same, admit that besides blows and weights there is another cause of motions, from which this power of free action has been begotten in us, since we see that nothing can come from nothing. For weight forbids that all things be done by blows through as it were an outward force; but that the mind itself does not feel an internal necessity in all its actions and is not as it were overmastered and compelled to bear and put

[1] *I.e.* the atoms.

up with this, is caused by a minute swerving of first-beginnings at no fixed part of space and no fixed time."[1]

One cannot do better than to take a good look at the "free-will" doctrine in its primitive form. It is well to do so for more than one reason.

In the first place, it may help one to realize how erroneous is the current notion that this doctrine has some natural connection with religion and good morals, and that they may be expected to be found in conjunction. When Stoic and Epicurean are placed in contrast, it is certainly not to the advantage of the latter. And surely no man can regard Augustine as less religious than Pelagius; St. Thomas as less religious than Duns Scotus, Luther as less religious than Erasmus, and Jansenius as less religious than his Jesuit opponents. A glance at the history of human thought tempts one to maintain that men of strong religious feeling are less likely to become "free-willists" than other men. Their peculiar danger appears to be a lapse into some sort of fatalism. We are all more or less inclined to think that doctrines which we happen to find in conjunction in our own day have a natural affinity for one another. The study of the history of philosophy serves to correct such hasty inductions.

In the second place, it is a good thing to read Lucretius, because we find portrayed in bold outline what is really characteristic of the "free-will" doctrine — what differentiates it from fatalism and from determinism. The poet points out that every motion must be regarded as springing from another motion in a fixed order, and cause be regarded as following cause from everlasting, unless we assume somewhere a commencement of motions — not a relative commencement, a transformation, but an absolute commencement, a causeless origination. A number of such causeless originations he discovers in the voluntary motions of man and brute, and he extends the notion of "free-will" so as to make it cover the erratic behavior of falling atoms. This behavior is not to be accounted for by a reference to the order of causes; it implies a break in the causal nexus — "at quite uncertain times and uncertain spots they push themselves a little from their course." If we assume a cause for each particular push, we are not freed from what Lucretius erroneously regards as "the decrees of fate," for the causal nexus

[1] "De Rerum Natura," II, 217–293; tr. Munro, Cambridge, 1891.

remains unbroken. The push must be uncaused, if we are to have "free-will."

The attribution of "free-will" to atoms generally was natural enough in one who regarded the whole soul as composed of atoms. This part of the Lucretian doctrine strikes the modern reader as bizarre. And if he be clear-minded, the modern reader will criticise Lucretius on two other points as well: he will remark that it is a palpable inconsistency to make certain motions causeless, and then to erect their very causelessness, *i.e.* "free-will," into a cause of their origination, on the ground that "nothing can come from nothing"; and he will point out that it is only an imperfect apprehension of the meaning of fatalism that can regard the denial of "free-will" as a surrender to "the decrees of fate."

It is doubtful whether most "free-willists" will feel impelled to urge these objections, for both of these errors have enjoyed a high degree of popularity for a very long time, and their popularity appears to be undiminished. Discussions touching the freedom of the will constantly show a tendency to lapse into a sponge of words in which all clear distinctions disappear. One thing is done by Lucretius, which, I feel safe in saying, will be warmly approved by almost all "free-willists"; he carefully limits the amount of "free-will" that anything may be permitted to enjoy. Bodies may only push themselves *a little* from their course: "You just and only just can call it a change of inclination." Too much "free-will" can cause the "free-willist" nothing save alarm and apprehension. That there is good reason for his uneasiness, I shall show a little farther on.

Before going farther I must enter into a brief explanation for the purpose of avoiding verbal misunderstanding. I have shown[1] that mental phenomena must not be regarded as standing in the one causal nexus with physical phenomena, and that no mental fact should be viewed as, in the strict sense of the word, the *cause* of a motion in matter. I have also pointed out[2] that the acceptance of this truth does not in the least compel one to repudiate the conceptions of purpose and end, to declare the mind inactive, and to regard as an illusion human responsibility.

I have furthermore laid much emphasis upon the fact that ordinary modes of speech convey truth, and are not lightly to be cast aside. One may use them; in most instances it is desirable

[1] Chapter XXXI. [2] Chapter XXXII.

to use them; but one must be careful not to be misled by them. We expect even the man of science to say that he climbed the Rigi to see the sun rise, and we would think it highly unreasonable to regard his words as proof that he is ignorant of the revolution of the earth upon its axis. And the most thoroughgoing of parallelists may say: The first time I sat down it was because I slipped; the second time, it was because I willed to do so. This does not mean that he is abandoning his parallelism and making a mental phenomenon the cause of a bodily motion. He can answer at once, when he is taxed with inconsistency, that the cause, in the strict sense of the word, is not the mental phenomenon, but some change in the brain to which the mental phenomenon is referred as an invariable concomitant. He may claim that he has a perfect right to use expressions in ordinary use, without translating them into parallelistic language, so long as nothing is to be gained by such a translation. It goes without saying that he has no right to use any expression that is incapable of such a translation.

I say all this because I am resolved to make use in this chapter of the common modes of speech, and to avoid emphasizing the doctrine of parallelism. This I do for two reasons: first, it is convenient to speak as the plain man speaks, and, second, it is desirable that the reader should realize that the choice between fatalism, "free-will," and determinism is in no way logically conditioned by one's choice of parallelism or of the opposing doctrine.

The parallelist may be a fatalist, a "free-willist," or a determinist; so may his opponent. To be a "free-willist" each has only to deny, with Lucretius, that "all motion is ever linked together and a new motion ever springs from another in a fixed order." Each may claim that "his own will makes for each a beginning and from this beginning motions are welled through the limbs." All that is necessary is the insistence upon breaks in the causal nexus; both may agree in this, while one regards the causal nexus as composed of a mixture of physical and mental phenomena, and the other regards it as composed of physical phenomena alone, to which mental phenomena stand in a peculiar relation that cannot properly be called causal. The former will regard the volition which, according to Lucretius, "makes for each a beginning," as the first term in a certain causal

series; the latter will make the concomitant brain-change the first term in the same series, and shift the volition to a parallel line, through a repugnance to materializing mind. Thus each will maintain that a given causal series runs out, when we follow it back to a certain point; and the considerations which move each to embrace such a doctrine must be the same. They are the considerations that moved Lucretius, and have moved men ever since.

It was necessary to say so much at this point, for I wish the reader to feel that he may accept the reasonings of this chapter without feeling responsible for what is said in the two chapters which have preceded. What is here said may be accepted by the parallelist, but it may also be accepted by his opponent. We are concerned with an independent question, which may be answered independently and on its own merits. With this preface, I turn to a closer examination of the "free-will" doctrine.

Here I sit at my desk; my hand is on the paper before me; can I raise it from the paper or not, just as I please? To such a question as this both the "free-willist" and his opponent, the determinist, who denies that there are breaks in the causal nexus, must give the same answer. Of course I can raise it or not, as I please. Both must admit that I am, in this sense, free to raise it or not to raise it. The question that divides them lies a little farther back: the determinist must hold that, if I please to raise my hand, there is some cause within me, or in my environment, or both, that brings about the result; and if I please not to raise it he must believe that there is some cause or complex of causes that produce just that result. He does not deny that I can do as I please. He merely maintains that my "pleasing" is never uncaused[1] and inexplicable. On the other hand, the advocate of the "liberty of indifference," the "free-willist"—the *indeterminist*, as he should really be called — maintains that, under precisely the same circumstances, internal and external, I may raise my hand or keep it at rest. He holds, in other words, that if I move,

[1] I beg the reader to bear in mind what has been said just above. When the parallelistic determinist says one's "pleasing" is never uncaused, he means by it that the physical basis of the mental phenomenon is absolutely determined by its physical antecedents. But it is not necessary for him to teach parallelism when he is merely discussing the question whether cause follow cause "from everlasting."

that action is not to be wholly accounted for by anything whatever that has preceded, for under precisely the same circumstances it might not have occurred. It is, hence, a causeless action.

Let us suppose that the "free-willist" is right, and that human actions may be causeless. I am, then, endowed with "freedom." Is this a fact in which I have good reason to glory? Let us see.

One must not forget that we are not here concerned with freedom in the usual sense of the word, freedom from external compulsion. I have used quotation marks above to indicate that the word is used in a peculiar and technical sense. When I assume that I am endowed with "freedom" it means only that my actions cannot wholly be accounted for by anything that has preceded them, even by my own character and impulses, inherent or acquired.

Now I have "freely" given a dollar to a blind beggar. The act is an act of "free-will"—it is *causeless*. Who, then, gave the dollar? Not I. The determining cause of the act is not to be found in me; the money was not given because I was a man of tender heart, one prone to benevolent impulses, and naturally incited by the sight of suffering to make an effort to relieve it. Just in so far as the act was the result of "free-will," these things could have had nothing to do with the matter. Another man, the veriest miser and skin-flint, the most unfeeling brute upon the streets, might equally well have been the instrument of the benevolent deed. His impulses might all be selfish, and his past life a consistent history of sordid greed; I am a lover of my kind; but what has all this to do with acts of "free-will"? If such acts can spring up only upon a grateful soil, they are not "free" but determined. To be really "free" they must not be conditioned by antecedent circumstances of any sort, by the misery of the beggar, by the pity in the heart of the passer-by. They must drop from a clear sky out of the void, for just in so far as they can be accounted for they are not "free."

As I contemplate it, my "freedom" begins to take on a melancholy aspect. It may manifest itself either in good or in evil deeds; who shall choose which? Not I. The deeds are uncaused, they are not conditioned by my character. And since they are uncaused, and have no necessary congruity with my character and

impulses, what guarantee have I that the course of my life will not exhibit the unhappy spectacle of the reign of mere caprice? For forty years I have lived quietly and in obedience to law. I am regarded as a decent citizen, and one who can be counted upon not to rob his neighbor, or to wave the red flag of the anarchist. I have grown gradually to be a character of such and such a kind; I am fairly familiar with my impulses and aspirations; I hope to carry out plans extending over a good many years in the future. Who shall decide for me what I shall do?

Alas, I am "free." This *I* with whom I have lived in the past and with whom I think I have some acquaintance, — this *I*, the respectable man of settled habits, cannot decide whether I shall carry out plans or break them, be consistent or inconsistent, love or hate, be virtuous or betake myself to crime. This *I* with whom I am familiar cannot condition the future. But I will make the most serious of resolves, bind myself with the holiest of promises! To what end? How can any resolve be a cause of causeless actions, or any promise clip the erratic wing of "free-will"? Could the monster be dealt with in this way, it would not be "free-will."

In so far as I am "free" the future is a wall of darkness. One cannot even say with the Moslem: "What shall be, will be;" for there is no shall about it. What will be has no root in what is. It is wholly impossible for me to guess what I will "freely" do, and it is hopelessly impossible for me to make any provision against "free" acts of the most deplorable description. A knowledge of my own character in the past brings with it neither hope nor consolation. My "freedom" is just as "free" as that of the man who was hanged last week. It is not conditioned by my character; if he could "freely" commit murder, so can I. It is true that I never dream of killing a man, and would not do it for the world; the *I* that I know sickens at the thought. Yet to admit that this *I* can prevent it, is to become a determinist. If I am "free," I cannot enter this city of refuge. Is "freedom" a thing that can be inherited as a bodily or mental constitution? Can it be repressed by a course of education, or laid in chains by lifelong habit? *In so far as any action is "free,"* what I have inherited, what I have been, what I am, what I have always done or striven to do, what I most earnestly wish or resolve to do at the present moment — these things can have no more to do with its future realization than if they had no existence.

If, then, I really am "free," I must face the possibility that I may at any moment do anything that any man may "freely" do.

The possibility is a hideous one; and the most ardent "free-willist" will, when he contemplates it frankly, excuse me for hoping that, if I am "free," I am at least not very "free." An excess of such "freedom" is indistinguishable from the most abject slavery to lawless caprice.

I cannot, then, count upon myself. Good resolutions cannot help me; I mortify the flesh in vain. And when I reflect upon the fact that my fellow-men are "free" too, I despair of bettering them by the offer of rewards or the threat of punishment. In so far as they are "free," they are absolutely beyond my control and their own; persuasion cannot move them; hope cannot draw them on; fear of pain cannot hold them back. "Freedom" cannot be *influenced* by anything or it would not be "freedom"—the idea of making laws for it, and of attaching to such laws penalties, is nothing less than absurd. A child has been guilty of a "free" action of a sort commonly regarded as reprehensible. He has been caught in the pantry. Shall his mother punish him? It seems foolish to punish him merely because he has done the thing he is charged with, for, strictly speaking, *he has not done the thing;* it cannot be referred to his character; there was nothing in him to account for its appearance, and there was nothing in him that could have inhibited the action. The act was a "free" one, *i.e.* it was a cuckoo's egg, found in the same nest with other eggs, but not to be attributed to the same source. But shall the child not be punished to prevent a recurrence of the deed? How futile a measure! Can any sensible person believe that a woman can with a slipper make such changes in a child's mind or body or both, as to determine the occurrence or non-occurrence of acts which are, by hypothesis, independent of what is contained in the child and in his environment? As well beat the child to prevent the lightning from striking the steeple in the next street. Only in so far as he is not "free" is he a creature to be reasoned with, to be persuaded, to be promised rewards, to be threatened, to be punished. Which means that only in so far as he is not "free" is he a rational human being, capable of taking a place in the great organism of society. In so far as he is "free" he is a monster, beyond the reach of all human influences; and were he very "free" we should certainly be compelled to keep him under lock and key.

I think I hear the "free-willist" object, that he does not postulate a great deal of "freedom" but a very little. We know that men do not ordinarily jump from open windows to their own detriment; nor, when they take their seat at the table, do they cut their throat with the knife beside their plate. They are withheld from such acts by considerations, *i.e.* their actions are undoubtedly influenced by character and environment. If we assume just a little "free-will," we do not render of no avail persuasion and punishment. We may persuade and punish so artfully and so vigorously as to overcome the erratic influences of "freedom," and propel our "free" agent along a path previously determined. "Free-will" may help this progress, or may somewhat hinder it; it cannot be counted upon; but, if the wind happen to be contrary, let us push the harder.

We are, then, always to use a little more energy than the occasion seems to call for; we are to furnish a surplus which will cover the aberrations of "free-will"; we are to deal out forty stripes plus one, where, in the absence of "free-will," forty minus one would seem a sufficient deterrent from crime. Thus will the prudent ferryman, when he discovers that a passenger about to step into his boat is a "free-will" creature, whose weight may causelessly oscillate between one hundred and two hundred pounds, take into consideration the danger of possible shipwreck, and make allowance for the worst that "free-will" can do.

It is, then, possible to maintain that the stirrings of "free-will" are too feeble to make of man a wholly irrational and unaccountable being; one may insist that he is endowed with but a few grains of irrationality, and is, on the whole, not beyond the reach of persuasion, but a thing to be moved by considerations. To be sure, it sounds odd for a man to keep insisting that "freedom" is a very good thing, and yet, in the same breath, to keep assuring us that it is a very good thing that we have very little of it. There are, however, some good things of which it is desirable to have but little; an excess of good vinegar can spoil a salad. Is "freedom" a something desirable in small quantities, and to be regretted only when present in excess?

I think it has been made clear in the preceding pages that even a little "freedom" is undesirable. Just in so far as a man is "free," the acts that seem to be his are not his; he is the sport of mere caprice; his breast is the seat of uncaused and inexplicable

explosions, which no man can predict, and which set at defiance all the forces which make for civilization. Why should a man wish to be even a little "free"? Is it that he may be *moral?*

A very little reflection is sufficient to make it evident that no "free" act can possibly be a moral act. We have all our lives been judging our actions and those of our fellow-men. Some of them we approve; some we very strongly disapprove. But no man of sense passes judgment upon human actions before he has found out something about their setting. We pry into men's motives and inquire regarding their intentions. Precisely the same act may be good or bad, according to its context. It is not a moral act for a savage to save a man alive, if he be spared with the intention of fattening and eating him later.

Now let us suppose that the action under discussion is my contribution of a dollar to the hoard of the beggar on the street-corner. Is it a moral action? Only the unreflective will undertake to answer offhand that it is. I may have given that dollar in the hope that one more drinking-bout would finish the beggar, and relieve me of his unæsthetic presence when I take my daily walk. I may have given it out of pure vanity, and to compel the admiration of the pleasing young person who is waiting for the tram. On the other hand, I may have given it because I was moved by the sight of suffering, and was willing to make a sacrifice for the sake of relieving it. It seems the most natural thing in the world to judge that the action is moral or not moral according to the setting in which we find it.

But what if the act was a "free" one? What if it was not determined by my character and impulses and the peculiar circumstances in which I was placed? In this case it cannot be accounted for by my desire to be rid of the beggar's presence. The impression made upon me by the fair onlooker cannot account for it. The sight of the beggar's misery furnishes no explanation. We cannot ask *why* the act was done. It was a "free" act. It simply appeared. We must bear in mind that, just in so far as an act is "free," it cannot be accounted for by any ideas antecedently in my mind, or by my natural tendency to selfishness, to vanity, or to generous movements of sympathy. It does not indicate in me either benevolence or baseness. It is an act without a setting — causeless, purposeless, blind. Is it a moral act? Surely we have turned our face resolutely away from

the moral judgments of mankind, when we have committed ourselves to the unnatural doctrine that "free" acts are moral.

If so very little can be said for indeterminism, why is it that so many good men defend it? The reason is not far to seek; they suppose that they are defending human freedom. Lucretius felt that nothing short of a causeless origination of motions could "break through the decrees of fate," and surely we must all admit that a man subject to the decrees of fate is not a free man. It does not lie with Œdipus to decide whether he shall or shall not kill Laïus. The notion that a denial of "free-will" is a denial of human freedom and a surrender to fatalism is a widespread error, and is quite sufficient to account for the surprising things men have said on the subject of the will.

It is a thousand pities that the doctrine of indeterminism should have come to be called the doctrine of "free-will." We have all heard much of fate and free-will, and no man with the spirit of a man in him thinks, without inward revolt, of the possibility that his destiny is shaped for him by some irresistible external power in the face of which he is impotent. No normal man welcomes the thought that he is not free, and the denial of free-will can scarcely fail to meet with his reprobation. We recognize freedom as the dearest of our possessions, the guarantee, indeed, of all our possessions. The denial of freedom we associate with wrong and oppression, the scourge and the dungeon, the tyranny of brute force, the despair of the captive, the sodden degradation of the slave. Freedom is the open door to the thousand-fold activities which well up within us, and to which we give expression with joy.

But it should never be forgotten that freedom — the freedom for which men have died, and which poets have sung — has no more to do with indeterminism, with "freedom," than has the Dog, a celestial constellation, with the terrestrial animal that barks. The antithesis of freedom is *compulsion*, that hateful thing that does violence to our nature and crushes with iron hand its activities. We say that a man is under compulsion, when the impulses of his own nature are overborne by some external power and are prevented from translating themselves into action. When I wish to raise my hand from the table, and find it held down by another, I am under compulsion. I am free when I can assert

myself; when *I* can do something; when the action in question can be referred to the idea in my mind.

Of course, in so far as actions which appear to be mine are *fated*, I am not free. Some external power is responsible for the actions in question. But it is equally clear that, in so far as any actions which appear to be mine are "free" actions, I am not free either. Such actions are not done by me, and cannot be prevented by me. They make their appearance independently; *I* am not consulted at all in the matter.

Thus we see that the fatalist and the "free-willist," cordially as they seem to detest each other, are really fighting for the same cause. The former is eager to maintain that actions of which I appear to be the author are done by some other power. The latter strenuously insists that actions of which I appear to be the author, are done by no power at all. *Both agree in denying my causal efficiency; both reduce me to a passive spectator of what appear to be my acts.*

It is clear that the "free-willist" has gone too far. He has set me free from another, and, not content with that, he has gone on to set me free from myself. He has refused to refer my behavior to another; now he refuses to refer my behavior to me. In other words, he has set me, not free, but "free." To withdraw me from society he has condemned me to a confinement so solitary that I am not even in the cell with myself.

This is not freedom. To be a free agent, man must at least be an agent. Of the three doctrines, fatalism, "free-will," and determinism, it is only the last that guarantees man's freedom. It holds that man is really an agent — that his acts may be attributed to him, that they have their roots in his character as well as in his environment.

Determinism is the doctrine that all the phenomena of nature are subject to law; it is a frank recognition of the order of causes as it seems to be revealed to us. The fall of a raindrop, the unfolding of a flower, the twitching of an eyelid, the penning of a sentence — all these, the determinist maintains, have their adequate causes, though the causes of such occurrences lie, in great part, beyond the line which divides our knowledge from our ignorance. Determinism is, of course, a faith; for it is as yet impossible for science to demonstrate even that the fluttering of an aspen-leaf in the summer breeze is wholly subject to law; and

that every turn or twist upon its stem must be just what it is, and nothing else, in view of the whole system of forces in play at the moment. Much less is it possible to prove in detail that that complicated creature called a man, draws out his chair, sits down to dinner, gives his neighbor the best cut of the beef, discusses the political situation, and resists the attractions of the decanter before him, strictly in accordance with law. No man can prove that every motion of every muscle is the effect of antecedent causes which are incalculable only because of the limitations of our intelligence and our ignorance of existing facts. And yet the faith of science seems to those trained in the sciences a reasonable thing, for, as is pointed out, it is progressively justified by the gradual advance of human knowledge, and even in fields in which anything like exact knowledge is at present unattainable, the little we do know hints unmistakably at the reign of law.

Determinism is, then, nothing less than a recognition of the order which reigns in the world. It differs from fatalism in that it refuses to ignore arbitrarily certain causal sequences to which experience appears to give unequivocal testimony. It regards as absurd the notion that an end can be determined independently of means — that the slaying of Laïus has no necessary connection with the actions of Laïus and of Œdipus. And it differs from indeterminism in holding that there is no action which may not theoretically be traced to its causes. In recognizing that ideas may stand to actions in the relation of plan to accomplishment, and that the ideas themselves are not inexplicable appearances, without relation to anything that has preceded them, it recognizes that man has a character and can act freely in harmony with his character. It views man as he is viewed by the judge, the philanthropist, the moralist, the pedagogue, and the plain man.

Men generally regard a man as free when he is in a position to be influenced by those considerations by which they think the normal man not under compulsion naturally is influenced. They do not think that he is robbed of his freedom in so far as he has a character, weighs motives, seeks information, is influenced by persuasion. What would become of our social system if men had no character, and were not affected by influences of this sort? The popular prejudice against determinism *must* be due to a misconception. It is due to the misconception that determinism and fatalism are the same thing; when, as a matter of fact, deter-

minism is the only doctrine which effectually combats fatalism and rescues for us that freedom without which man would not be man.

A determinist cannot, then, be a fatalist. I have said some pages back that he may or may not be a parallelist. It ought to be evident that he may or may not be a materialist or an idealist, a monist or a dualist, a theist, an atheist, or an agnostic. From this sheaf of "isms" he must choose on other grounds than his determinism. As a determinist he must regard the world as an orderly world and recognize cause and effect wherever they seem to be revealed. But men may agree upon this point, and yet differ widely touching the ultimate nature of this orderly world. There is nothing to prevent the determinist from being a theologian, and upholding the doctrine of predestination. However, he must not be a fatalistic predestinarian; he must regard the Divine plan as embracing means as well as ends; he must make it all-inclusive. If he does this, he can say, with George Herbert: —

> "O sacred Providence, Who from end to end
> Strongly and sweetly movest! shall I write,
> And not of Thee, through whom my fingers bend
> To hold my quill? shall they not do Thee right?" . . .
>
> "We all acknowledge both Thy power and love
> To be exact, transcendent, and divine;
> Who dost so strongly and so sweetly move,
> While all things have their will, yet none but Thine."

CHAPTER XXXIV

OF GOD

I HAVE said in an earlier chapter[1] that there is but one argument for the existence of minds, and I have insisted that the assumption that minds exist must not be made lightly and without good reason.

That men have made and do make a multitude of hasty inferences of the sort needs no proof. The bright cloud of the greater and lesser divinities with which the poetic imagination of the Greek peopled heaven and earth could not endure the beams of the rising sun, and it dissolved and disappeared. To primitive man all things are full of gods in a very literal sense, and when primitive man learns to reflect, these gods are banished to the realm of mere imaginings. So beautiful are the unreal creatures born of the uncritical thought of a gifted race, that one feels a pang as one sees them fade away. The sky, the earth, and the expanse of ocean seem robbed of the life with which they pulsated, and there are moments in which even the modern man is tempted to envy the pagan "suckled in a creed outworn."

Our world, the world which science and the development of reflective thought present to our gaze, is, it is true, a something much more august than the cosey little world in which the Greek found himself so much at home. Of its majesty the ancient thinkers had glimpses not vouchsafed to their unthinking fellows. But the long labor of the ages has brought us to a deeper realization of its greatness and to an abiding sense of the littleness of man. We are more conscious of our ignorance than were our predecessors, and the very growth of our knowledge has forced us to see how far we fall short of the ideal of knowledge which we have come to hold before ourselves and which we make efforts to attain. In this great world which we see dimly presented to us man seems to hold an insignificant place ; it is, per-

[1] Chapter XXVIII.

haps, natural that he should sometimes realize this with a shiver, and look back regretfully to a world that is dead and gone.

But what is the world as it is revealed to the modern man? It is still a world of matter and of minds. But the world of matter has expanded into a vast mechanism, which we cannot dare to limit either in space or in time, and with whose laws we have but the beginning of an acquaintance, — a mechanism in comparison with which man's little body, the solid earth upon which he stands, the solar system of which it is a part, are as vanishing quantities. And the realm of minds which can be indubitably *proved* to exist seems to have shrunk into insignificance, leaving the great world bare and desolate.

Science tells of a time when there was no life upon the earth, and predicts a time when life shall have disappeared. Even in our little corner of the Universe, the existence of the minds which criticism has left us appears to be a passing existence. They come, and they are gone, and their place knows them no more. Of minds related to organisms in other worlds than ours, we may speculate, but we know nothing definite. If there be such, must we not assume that they people a world in a given phase of its existence, and disappear as minds and organisms will disappear on this planet? The world is, then, a world of matter and of minds — but the world is great, and the minds seem lost in the immensities of time and space.

Is this the sum of things to the modern man, the heir of the ages? There can be, I think, no doubt that the student of the sciences who is willing to walk only upon a path illumined by the clear light of demonstrative evidence, the man who will accept only what is proved as definitely as it can be proved that there is hydrogen in the sun or that other men have minds like his own, must accept this world in its bareness and in its desolation.

And yet to the mass of men this is not the sum of things; the world thus viewed is a world robbed of its soul, a world dead and meaningless, and not the living reality in whose presence they feel themselves to be. They cannot escape the conviction that the world reveals, not merely minds, those little minds whose existence and whose nature it seems possible to determine in the light of what will generally be accepted as scientific evidence, but also Mind, a something immeasurably greater than any or all of these. In other words, they believe in God; and it is of this

belief — a belief so venerable and one that has played so important a part in the evolution of humanity that it cannot be treated lightly by any thoughtful man — that I purpose to speak in this chapter.

It is no part of the duty of the metaphysician to prove the existence of God, as it is no part of his duty to prove the existence of any given finite mind. But just as it clearly is his duty to make evident what we mean when we speak of a mind, how we are to conceive of minds as related to matter, and the nature of the inference by which we establish the existence of minds; so it is his duty to show what we may legitimately mean when we speak of God, how we are to conceive of God as related to the world, and the nature of the inference on which a belief in God may find its foundation. To be sure, one may believe very firmly in the existence of other men's minds, and one may be penetrated with the conviction that God exists, without ever having attained to any clear ideas at all upon the points above mentioned. In each case one may be in the possession of truth. But a truth dimly grasped is always a truth more or less in danger of admixture with error, and from such error the analyses of the metaphysician may help to free one. They are not without their uses.

Of all the arguments which have been advanced for the existence of God there is but one that can be said to have really influenced men's minds, and that is the Argument from Design. It maintains that we find in the world evidences of a Mind that is not to be confused with the minds referred to particular organisms. It appeals to the plain man quite as strongly as it has appealed to the philosopher and to the theologian; it seems to him simple, unambiguous, and in harmony with the dictates of common sense. Even when he is not wholly content to accept its conclusion, it appears to him an argument which a sensible man need not be ashamed to bring forward. Of this argument I shall speak at some length after a while; but first I must say something of proofs of a different sort.

As the student of the history of speculative thought well knows, there is quite a collection of such. They have seemed satisfactory to those who discovered them, and perhaps to a few of their disciples. To the mass of mankind they mean nothing at all. This is not the place to enter into a detailed criticism of theistic arguments, for the discussion would have to be a long

one; but I may be permitted to illustrate what an argument for God should not be by a reference to arguments of this kind.

For convenience I shall divide them into two classes: those which make God a mind, but prove His existence in a way in which it is not sensible to try to prove the existence of any mind; and those which make God something else than a mind, and which, hence, cannot properly be called theistic arguments, whatever they may or may not prove.

For a good illustration of arguments of the first class I turn to Bishop Berkeley. The objects perceived by the senses can have no existence, he maintains, except in a mind. Our perceptions of such objects are intermittent — there is no sensible thing of which we are continuously conscious. Yet the objects of sense must have a continuous existence, for it is absurd to maintain that the world is at every instant annihilated and created anew. The world must, then, exist continuously, and, since it does not exist continuously in any finite mind, there must exist a divine Mind in which it has its being: "As sure, therefore, as the sensible world really exists, so sure is there an infinite omnipresent Spirit who contains and supports it."

The error at the root of this argument I have indicated in Chapter VII. Berkeley has confounded things with the perception of things in this mind or in that. He has turned the divine Mind into a cupboard for the storing of unused percepts. Had he held on to an external world, as he should have done, and had he realized what it means for a thing to exist in the external world, he would not have had the shadow of a foundation for this fantastic argument. It impresses as untrustworthy even those who do not see clearly just where he has gone wrong. It is not self-evident that percepts must exist continuously; we have no evidence that percepts are transferred from mind to mind as chairs may be carried from one room to another; it never occurs to us to try to prove the existence of any finite mind on no better ground than the loss of percepts from our own. The argument is emphatically an argument for the philosopher, and for the philosopher who is already convinced of the truth of the conclusion and cares little to scrutinize the premises.

The *fides quaerens intellectum*, the faith that already has its conclusion, and is casting about for premises, is always in some danger of accepting premises uncritically. We must not be too

severe upon Berkeley, for this lovable soul was misled by a weakness which belongs to our common human nature. And we must not be too severe upon Anselm and Descartes for the mediæval subtlety which would, as it has happily been expressed, coerce God into existence by sheer force of definition.

"We believe," cries Anselm,[1] "that Thou art a being than which nothing greater can be thought. Is there, then, no such nature, because the fool has said in his heart: There is no God? But surely the fool himself, when he hears me speak of a being than which nothing greater can be thought, understands what he hears, and what he understands is in his mind, although he does not understand that the being exists. For it is one thing to have an idea of an object; another, to know that the object exists. When a painter thinks of a picture which he is about to paint, he has the picture in his mind; but he knows that it does not yet exist, because he has not painted it. But when he has painted it, he both has it in his mind and knows that it exists, for he has painted it. Hence even the fool may be convinced that there exists, at least in his mind, something than which nothing greater can be thought. When he hears this mentioned, he understands it, and what he understands is in his mind. But that, than which nothing greater can be thought, cannot exist only in the mind; for if it exists only in the mind, something can be thought as existing both in the mind and in reality, and this is greater. If, therefore, that than which nothing greater can be thought, exists only in the mind, then that, than which nothing greater can be thought, is that, than which something greater can be thought; but surely this cannot be. Hence there exists, without doubt, something than which nothing greater can be thought, and this exists both in the mind and in reality."

"Now if," writes Descartes,[2] "from the mere fact that I can draw from my thought the idea of an object, it follows that everything I clearly and distinctly apprehend to belong to that object really does belong to it, may I not draw from this an argument and a demonstrative proof of the existence of God? It is as certain that I find in myself the idea of Him, *i.e.* the idea of a supremely perfect being, as that I find in myself the idea of any figure or number. And I know just as clearly and distinctly that an actual and eternal existence belongs to His nature, as I know

[1] "Proslogion," II. [2] "Méditation cinquième."

that everything I can demonstrate of a given figure or number really belongs to the nature of that figure or number. Hence, even if the conclusions arrived at in the preceding 'Meditations' should be found to be false, I ought to regard the existence of God as being at least as certain as I have heretofore believed the mathematical truths to be which are concerned only with numbers and figures; though, in truth, this may not appear quite clear at first sight, but may seem somewhat sophistic. For, being accustomed to distinguish in all other things existence from essence, I easily persuade myself that God's existence can be separated from His essence, and that, hence, one can conceive God as not actually existing. Nevertheless, when I give closer attention to the matter, I find that God's existence can no more be separated from His essence, than from the essence of a rectilinear triangle can be separated the equality of the sum of its three angles to two right angles, or from the idea of a mountain the idea of a valley. Thus it is no less absurd to conceive of a God, *i.e.* of a supremely perfect Being, that lacks existence, *i.e.* that lacks some perfection, than it is to conceive of a mountain without a valley."

It is not worth while to analyze these arguments at length. They have long been dead. The reader has probably observed that they rest in part upon a misapprehension of the meaning of the words "real existence." Real existence is not a constituent property or attribute of a thing — a something which, when added to the other attributes, completes the thing, and, when abstracted, leaves the thing defective. What we can mean by real existence has been indicated earlier in this volume, and it is very clear that it is not a something which we may extract from a mere idea by the aid of an analysis. The verdict of the world touching such arguments as the above does not widely differ from that attributed to Gerson, the famous chancellor of the University of Paris: "I do not know which is the bigger fool, he who admits this conclusion, or he who says in his heart: There is no God."[1]

From such arguments as these, I pass to those of the second class mentioned above — those which make God something else than a Mind, and which, hence, cannot properly be regarded as theistic arguments at all. It would be absurd to maintain that their authors have not, in many instances at least, intended them as theistic arguments, or that they have realized that the object of

[1] De Vorges, "Saint Anselme," Paris, 1901, p. 289.

their proof is not what men commonly mean by God. Men who advance such proofs may be devout theists, and may be under the impression that they are establishing the existence of God, when they are actually doing quite another thing. My meaning will best be made plain by a few illustrations, and to these I turn without further preamble.

It is, argued Augustine, by depending upon the evidence of the senses that one comes to infer the existence of other men's minds. Each mind perceives itself immediately ; it perceives by sense the bodies of other men, and infers from their movements that they enclose a mind similar to itself. It must, however, *believe in* such minds : it cannot know them as it knows itself.

Our mind has, nevertheless, immediate and certain knowledge beyond its knowledge of itself. When a man tells us some fact concerning his own mind, we *believe* it ; when he enunciates some general truth, we *recognize* and *approve* it. The individual volitions, etc., in each person, but that one person can immediately perceive ; the truth enunciated is common to all ; we can all gaze upon it with the eye of the mind. It is an "intelligible" thing, and exists in an unchangeable eternity. Thus we perceive truth, beauty, righteousness, which exist as eternal "forms."

Now, nothing is true, unless it partakes of truth ; but God is the Truth *per se*. And nothing is good except as it partakes of goodness ; but the good of goods, by which all things are good, is God. If one could put aside those things which are good by the participation of the good, and could discern that good by the participation of which they are good, one would discern God. He who loves his brother, loves God, who is love, and is more certainly known than his brother — "known more, because more present ; known more, because more within him."[1]

To one unfamiliar with the history of philosophy this argument must seem strange and unnatural in the extreme. But to one who is at all acquainted with the course of speculative thought among the ancients and in the Middle Ages every turn of expression must sound familiar. Augustine introduces us to the Platonic Realism, which turned *universals*, class notions, abstractions, into realities, eternal, unchangeable, and higher in their nature than the individual things which may be subsumed under them. To

[1] "De Trinitate," VIII, 12. See also "De Civ. Dei," VIII, 6, 9 ; "Solil.," I, 27 ; "De Trin.," VIII, 3, 4, 5, 9, and XIV, 21.

one who looks at things in this way, the truth, beauty and goodness which may be discerned in what is true, beautiful, and good are no longer abstractions; they are independent of the objects which, in Platonic phrase, "participate" in them. What more natural than to believe that the contemplation of these eternal realities is nothing else than the contemplation of the attributes of God? Thus, he who knows any truth, knows Truth; he who knows anything good, knows Goodness; he who loves his brother, knows his own love, and, hence, knows Love. In knowing these he knows God; and he knows Him more immediately than he can know any finite mind except his own.

It is scarcely necessary to point out to the modern reader that this is in no sense an argument for God. The God who is thus "discerned" is, after all, but a group of abstract notions, and is not in the least a mind distinct from the mind of man and revealed by the system of things. That it is not known as, in general, other minds are known, Augustine has himself indicated. So foreign is the whole argument to our present ways of thinking, that it may occasion some surprise that I should here devote space to it; but the realistic tendency to turn abstractions into things has had such an immense influence upon philosophic thought in the past, and has shown itself in the writings of men in other respects so different from one another, that it seems wrong to make no reference to it, when one is treating even briefly the arguments for God which men have deemed it worth while to bring forward.

One would think it well-nigh impossible to find a bed broad enough to contain three men so different as St. Anselm, Giordano Bruno, and Spinoza. Yet all three found it possible to attain their chosen ends by the conversion of universals — class-notions — into individual things. "He," writes Anselm, "who cannot understand how several men are specifically one man, is also incapable of understanding how several persons, each of whom is God, are one God."[1] The rhapsodies of Bruno must remain wholly unintelligible to one who does not see that the First Absolute Principle of which he speaks is a universal, an abstraction, obtained by allowing the differences which distinguish individual things to drop out of view.[2] The Spinozistic God or Substance, in which,

[1] "De fide Trinitatis," 2.

[2] "Della Causa, Principio ed Uno:" Dialogo Terzo; ed. Wagner, pp. 261–264.

in the pages of the "Ethics," all things seem to live and move and have their being, turns out on examination to be logically nothing more than a name for thought and extension in the abstract.[1]

It has gone out of fashion to demonstrate the existence of God by identifying Him with a group of universals; but it has not gone out of fashion to offer demonstrations of God's existence. I shall briefly set forth two that have been brought forward in our own time, and are being more or less discussed by our contemporaries. The reader will see, I hope, that they are defective in somewhat the same way as the argument of Augustine is defective — it is only by a confusion that the object with which they concern themselves can be regarded as God at all.

I pass over Mr. Spencer's attempt to establish the existence of an Absolute which it is clear that he regards as a quasi-deity, and for which he harbors emotions of awe and veneration. Both the argument and its object have been examined in Chapter XXVI, and it was there pointed out that the argument is a *non sequitur* and that its object is simply nothing at all. The Unknowable we may leave out of account. I shall begin with the argument for the Absolute, by which is meant the Deity,[2] presented us by Mr. Bradley in his work entitled "Appearance and Reality." In outline it is as follows: —

All those aspects of our experience which we are accustomed to regard as indubitable and real — qualities of things, the relations between such, things themselves, space, time, motion and change, causation, activity, the self — turn out on critical examination to be self-contradictory and absurd. They cannot, hence, be real; they must be something unreal, mere appearance.[3]

We must, however, keep fast hold upon this, that appearances exist. It is nonsense to deny this. And whatever exists must belong to reality.[4]

Now, when we criticise anything as untrue, as unreal, we evidently apply a criterion of reality. Thus, in rejecting the inconsistent, as appearance, we are applying a positive knowledge of the ultimate nature of things. Our test is self-consistency. Reality must be self-consistent. And as appearance must belong to reality, it must be concordant and other than it seems. The

[1] I have discussed this at length elsewhere; see "The Philosophy of Spinoza," New York, 1894, and "On Spinozistic Immortality," Philadelphia, 1899.

[2] See the Introduction. [3] Chapters I to XII. [4] pp. 131–132, ed. 1897.

bewildering mass of phenomenal diversity must, hence, somehow be at unity and self-consistent; for it cannot be elsewhere than in reality, and reality excludes discord. This amounts to saying that the real is individual; it is one.[1]

Our result so far is this: "Everything phenomenal is somehow real; and the absolute must at least be as rich as the relative. And, further, the Absolute is not many; there are no independent reals. The universe is one in this sense that its differences exist harmoniously within one whole, beyond which there is nothing. Hence the Absolute is, so far, an individual and a system, but, if we stop here, it remains but formal and abstract. Can we then, the question is, say anything about the concrete nature of the system?

"Certainly, I think, this is possible. When we ask as to the matter which fills up the empty outline, we can reply in one word, that this matter is experience. And experience means something much the same as given and present fact. We perceive, on reflection, that to be real, or even barely to exist, must be to fall within sentience. Sentient experience, in short, is reality, and what is not this is not real. We may say, in other words, that there is no being or fact outside of that which is commonly called psychical existence. Feeling, thought, and volition (any groups under which we class psychical phenomena) are all the material of existence, and there is no other material actual or even possible."[2]

Thus, "the Absolute is one system, and its contents are nothing but sentient experience. It will hence be a single and all-inclusive experience, which embraces every partial diversity in concord. For it cannot be less than appearance, and hence no feeling or thought of any kind can fall outside its limits. And if it is more than any feeling and thought which we know, it must still remain more of the same nature. It cannot pass into another region beyond what falls under the general head of sentience."[3]

But what are we to understand this Absolute, this one system, as including? Mr. Bradley's answer to this question is so significant that I must quote it at length.

"Can the Absolute be said to consist and to be made up of souls? The question is ambiguous, and must be discussed in sev-

[1] Chapter XIII. [2] p. 144. [3] pp. 146–147.

eral senses. Is there — let us ask first — in the universe any sort of matter not contained in finite centres of experience? It seems at first sight natural to point at once to the relations between these centres. But such relations, we find on reflection, have been, so far, included in the perception and thought of the centres themselves. And what the question comes to is, rather, this, Can there be matter of experience, in any form, which does not enter as an element into some finite centre?

"In view of our ignorance this question may seem unanswerable. We do not know why or how the Absolute divides itself into centres, or the way in which, so divided, it still remains one. The relation of the many experiences to the single experience, and so to one another, is, in the end, beyond us. And, if so, why should there not be elements experienced in the total, and yet not experienced within any subordinate focus? We may, indeed, from the other side, confront this ignorance and this question with a doubt. Has such an unattachment element, or margin of elements, any meaning at all? Have we any right to entertain such an idea as rational? Does not our ignorance in fact forbid us to assume the possibility of any matter experienced apart from a finite whole of feeling? But, after consideration, I do not find that this doubt should prevail. Certainly it is only by an abstraction that I can form the idea of such unattached elements, and this abstraction, it may seem, is not legitimate. And, if the elements were taken as quite loose, if they were not still inseparable factors in a whole of experience, then the abstraction clearly would lead to an inconsistent idea. And such an idea, we have agreed, must not be regarded as possible. But, in the present case, the elements, unattached to any finite centre, are still subordinate to and integral aspects of the Whole. And, since this Whole is one experience, the position is altered. The abstraction from a finite centre does not lead visibly to self-contradiction. And hence I cannot refuse to regard its result as possible.

"But this possibility, on the other side, seems to have no importance. If we take it to be fact, we shall not find that it makes much difference to the Whole. And, again, for so taking it there appears to be almost no ground. Let us briefly consider these two points. That elements of experience should be unattached would (we saw) be a serious matter, if they were unattached altogether and absolutely. But since in any case all comes together

and is fused in the Whole, and since this Whole in any case is a single experience, the main result appears to me to be quite unaffected. The fact that some experience-matter does not *directly* qualify any finite centre is a fact from which I can draw no further conclusion. But for holding this fact, in the second place, there is surely no good reason. The number of finite centres and their diversity is (we know) very great, and we may fairly suppose it to extend much beyond our knowledge. Nor do the relations, which are 'between' these centres, occasion difficulty. Relations of course cannot fall somewhere outside of reality; and, if they really were 'between' the centres, we should have to assume some matter of experience external and additional to these. The conclusion would follow; and we have seen that, rightly understood, it is possible. But, as things are, it seems no less gratuitous. There is nothing, so far as I see, to suggest that any aspect of any relation lies outside the experience-matter contained in finite centres. The relations, as such, do not and cannot exist in the Absolute. And the question is whether that higher experience, which contains and transforms the relations, demands any element not experienced somehow within the centres. For assuming such an element I can myself perceive no ground. And since, even if we assume this, the main result seems to remain unaltered, the best course is, perhaps, to discard it as unreal. It is better, on the whole, to conclude that no element of Reality falls outside the experience of finite centres.

"Are we then to assert that the Absolute consists of souls? That, in my opinion, for two reasons would be incorrect. A centre of experience, first, is not the same thing as either a soul or, again, a self. It need not contain the distinction of not-self from self; and, whether it contains that or not, in neither case is it properly a self. It will be either below, or else wider than and above, the distinction. And a soul, as we have seen, is always the creature of an intellectual construction. It cannot be the same thing with a mere centre of immediate experience. Nor again can we affirm that every centre implies and entails in some sense a corresponding soul. For the duration of such centres may perhaps be so momentary, that no one, except to save a theory, could call them souls. Hence we cannot maintain that souls contain all the matter of experience which fills the world.

"And in any case, secondly, the Absolute would not *consist* of souls. Such a phrase implies a mode of union which we can-

not regard as ultimate. It suggests that in the Absolute finite centres are maintained and respected, and that we may consider them, as such, to persist and to be merely ordered and arranged. But not like this (we have seen) is the final destiny and last truth of things. We have a rearrangement not merely of things but of their internal elements. We have an all-pervasive transfusion with a reblending of all material. And we can hardly say that the Absolute consists of finite things, when the things, as such, are there transmuted and have lost their individual natures."[1]

I must frankly confess that Mr. Bradley's argument appears to me so loose in its texture and so vague in its conclusion that I cannot but marvel that it has seemed to any one a satisfactory argument for God. All those things that Mr. Bradley has set aside as mere appearance — space, time, motion, causality, activity, and the rest — seem, I think, self-contradictory only to one who has made a half-analysis of them, and has fallen into the usual confusions of those who make half-analyses. And what shall we make of the statement that these things, although they are not real, *exist?* Have they *real* existence? No, their existence must be merely apparent existence. But what *is* apparent existence? What is the difference between it and real existence? Surely it is desirable that we be treated to a clear analysis of both of these conceptions before they be allowed to play their part in the argument laid before us. And how understand the assertion that appearance must *belong to* reality? As it stands it is vagueness itself. We shall see whether it becomes any less vague in the sequel.

"Reality," says Mr. Bradley, "must be self-consistent. And as appearance must belong to reality, it must be concordant and other than it seems." Is this a roundabout way of saying that appearance *is* reality? If appearance *belongs to* reality in some loose sense of the word, why may not reality be consistent and appearance remain inconsistent? And how can an *appearance* be "other than it seems"? When we have gotten to the *other*, are we still dealing with the appearance? And is it possible to be "in reality" without being real?

As the reader must see, Mr. Bradley's argument moves in a cloud of vague and unanalyzed conceptions which it is the first

[1] pp. 526–529.

duty of the metaphysician to dissect. But I must not loiter. Mr. Bradley arrives at the conclusion that Reality, the Absolute, is one system to which every appearance "somehow" belongs. Having gotten so far, he falls into the idealistic blunder of rejecting the only thing which makes it possible for us to have a universe, a cosmos, a system of things at all — he denies the existence of an external world: "there is no being or fact outside of that which is commonly called psychical existence."

I have discussed this blunder at such length in previous chapters, that it would be unpardonable for me to dwell upon it here. But the reader will remember that, to one who holds firmly to an external world, and who realizes what is meant by psychical existence as distinguished from physical, it is not unmeaning to speak of *a system of things*. To him there are external things and there are minds; the external things form a system, and the minds are related to bodies in that system, and thus to each other, in certain definite ways which can with some clearness be indicated. There is no phenomenon which may not (theoretically) be assigned its place in that system. It is a system which seems to be recognized by science and common sense.

Of such a system Mr. Bradley's denial of an external world deprives him. He seems to have nothing left on his hands save a plurality of minds, "centres of experience," which must be held together by a "somehow." He cannot even call upon Berkeley's God to bring order out of this chaos, for he does not believe in Berkeley's God. Reality, the Absolute, contains nothing that does not fall within the experience of finite centres; in other words, there is nothing in the Absolute which is not in finite minds.

To the plain man such a statement as this can only mean that the Absolute consists of the total contents of finite minds, taking this word in its broadest sense. But Mr. Bradley objects to the use of the word "consist" in this connection. The contents of finite minds must undergo "an all-pervasive transfusion with a reblending of all material" before we have the Absolute; and under this treatment finite things must be "transmuted" and must "lose their individual natures."

Now, I beg the reader to ask himself seriously whether, when we have denied the existence of an external world; when we have refused to admit the existence of anything outside of a

number of finite minds apparently wholly disconnected with each other; when we have "transmuted" the contents of such minds until they have "lost their individual natures"; when, that is, we have so altered qualities of things, relations, space, time, causality, motion, change, activity, the self, that in the end no one of them is, in Pyrrhonic phrase, "any more this than that"; — I beg the reader to ask himself seriously whether, when we have done all this, we may conclude that we have been moving in the direction of anything that the broadest charity can dignify by the name of a "system," a universe, an order of things?

And I also beg the reader to ask himself, whether the resulting confusion, the "all-pervasive transfusion" of the contents of finite minds, is what men mean, and what in the past centuries they have meant, by the word "God"?

To be sure, men have used the word in many senses, — it has not meant precisely the same thing to the rustic and to the scholar, to the mediæval monk and to the modern man of science, to the Jew, to the Moslem, and to the Christian. Nevertheless, the fluctuations in the meaning of the word have not been, as a rule, lawless and limitless. Men generally have conceived God to be a Mind revealed in the world, and they have conceived of that Mind after the analogy of the human mind — sometimes with many apologies for having done so.

When a thinker has, advertently or inadvertently, quite abandoned this thought, and when it has become clear to others that he has abandoned it, he has failed to carry men with him. They have recognized that he has not brought them a fuller revelation of the Deity which they ignorantly worship, but has placed before them a Pseudo-God, a something that can only by a confusion be identified with the Being that men have called God, and which they have conceived to be a Mind. Whether it has been a group of universals, or the empty Plotinic "One," or the something to which John Scotus on the one hand denied being and which he on the other affirmed to be "truth, goodness, essence, light, justice, sun, star, air, water, lion, town, worm, and countless other things" among which are included drunkenness, foolishness, and madness; whether it has been the object of the negative theology of Meister Eckhart, or the Absolute of Mansel and Spencer; it has not been accepted as God; and, I think, with entire justice.

Most thoughtful persons who believe in God are ready to

admit that their knowledge of Him is very imperfect; at the same time, their thought, when they use the word, is at least sufficiently definite to enable them to say with some decision that there are certain things that it does not mean to them, and that it has not meant to those who have preceded them. They observe with a certain wonder that those who bring forward such conceptions of God retain the religious emotions that have sprung from and that seem appropriate to a conception of a very different kind. They can only explain the fact by supposing, either that such writers have been unduly influenced by the associations that hover about certain words, or that they really admit into their conception elements that a strict logical consistency would exclude from it.

I now turn to an examination of the demonstration of God's existence offered us by Professor Royce. It is my last illustration.

We men, says Professor Royce, as we have wrought upon the data of our senses, have gradually woven a vast web of what we call relatively connected, united, or organized knowledge. This organized knowledge has a curious relation to our more direct experience. Whenever it is best developed, we find it undertaking to deal with a world of truth, of so-called reality, or at least of apparent truth and reality, which is very remote from the actual sensory data that any man of us has ever beheld. Our organized science deals very largely with conceived — with ideal — realities that transcend actual human observation. Atoms, ether-waves, geological periods, processes of evolution, — these are to-day some of the most important constituents of our conceived phenomenal universe.[1]

This realm would be a mere world of fantastic shadows if we had not good reason to say these ideas, these laws, these principles, these ideal objects of science, remote as they seem from our momentary sensory experiences, still have a real, and in the end, a verifiable relation to actual experience. We use the scientific conceptions because we can verify their reality. And to verify must mean to confirm in sensory terms. To be sure, such verification has to be for us men an extremely indirect one.[2]

But our direct experience, as it actually comes, is but a heap of fragments. When we say that science reduces our experience to order, we are still talking in relatively ideal terms. Science

[1] "The Conception of God," New York, 1902, p. 23. [2] p. 24.

does not succeed in reducing the chaos of our finite sensory life to any directly presented orderly wholeness.[1]

Thus, "all our actual sensory experience comes in passing moments, and is fragmentary. Our science, wherever it has taken any form, contrasts with this immediate fragmentariness of our experience the assertion of a world of phenomenal truth, which is first of all characterized by the fact that for us it is a conceptual world, and not a world directly experienced by any one of us. Yet this ideal world is not an arbitrary world. It is linked to our actual experience by the fact that its conceptions are accounts, as exact as may be, of systems of possible experience, whose contents would be presented, in a certain form and order, to beings whom we conceive as including our fragmentary moments in some sort of definite unity of experience. That these scientific accounts of this world of organized experience are true, at least in a measure, we are said to verify in so far as, first, we predict that, if they are true, certain other fragmentary phenomena will get presented to us under certain definable conditions, and in so far as, secondly, we successfully proceed to fulfil such predictions. Thus all of our knowledge of natural truth depends upon contrasting our actually fragmentary and stubbornly chaotic individual and momentary experience with a conceived world of organized experience, inclusive of all our fragments, but reduced in its wholeness to some sort of all-embracing unity. The contents and objects of this unified experience, we discover first by means of hypotheses as to what these contents and objects are, and then by means of verifications which depend upon a successful retranslation of our hypotheses as to organized experience into terms which our fragmentary experience can, under certain conditions, once more fulfil."[2]

We are now in a position to understand what we mean by human ignorance. It is the contrast of our supposed indirect knowledge of the contents of the ideal organized experience described above with our direct and actual, but fragmentary, passing experience, that enables us to confess our ignorance. We accuse our direct experience of illusory fragmentariness, because we contrast the contents of our individual experience, not with any mere reality apart from any possible experience, but with the conceived object of an ideal organized experience, — an object conceived to be pres-

[1] p. 25. [2] pp. 27–28.

ent to that experience as directly as our sensory experiences are present to us.[1]

Is there any such real unity of organized experience? The question "is precisely equivalent to the question: Is there, not as a mere possibility, but as a genuine truth, any reality? The question: Is there an absolutely organized experience? is equivalent to the question: Is there an absolute reality? You cannot first say: There is a reality now unknown to us mortals, and then go on to ask whether there is an experience to which such reality is presented. The terms 'reality' and 'organized experience' are correlative terms. The one can only be defined as the object, the content, of the other. Drop either, and the other vanishes. Make one a bare ideal, and the other becomes equally such. If the organized experience is a bare and ideal possibility, then the reality is a mere seeming. If what I ought to experience, and should experience were I not ignorant, remains only a possibility, then there is no absolute reality, but only possibility, in the universe, apart from your passing feelings and mine. Our actual issue, then, is: Does a real world ultimately exist at all? If it does, then it exists as the object of some sort of concretely actual organized experience, of the general type which our science indirectly and ideally defines, only of this type carried to its absolute limit of completeness."[2]

Now, what is the proof of the reality of such an absolute experience? Let us grant, for the moment, that there is no universal experience as a concrete fact, but only the finite experience, with its hope and endeavor to win it, with its error. What will this mean? The fragmentariness and error of this finite experience will be a fact, a truth, a reality, and, as such, just the absolute truth. But this absolute truth will exist for whose experience? For the finite experience? No, for although our finite experience knows itself to be limited, still, just in so far as it is finite, it cannot know that there is no unity beyond its fragmentariness. If, then, there is no universal experience, this truth will be a truth nowhere presented — a truth for nobody: "to assert a truth as more than possible is to assert the concrete reality of an experience that knows this truth." Hence, there must be an absolute experience; the very effort to assert that the whole of experience is a world of fragmentary and finite experience is an effort involving a contradiction.[3]

[1] pp. 28–30. [2] pp. 35–36. [3] pp. 39–41.

I cannot but think that the above argument rests upon certain confusions which arise out of an insufficient analysis of conceptions. To criticise it in full would compel me to repeat what I have said in previous chapters touching the nature of the external world, the meaning of the verb "to exist" as applied to material things, the distinction between the world and minds which are supposed to know the world, and the nature of the argument by which we establish the existence of other minds than our own. I must not, of course, do this ; but I can at least indicate what seem to me the weak points in the argument, and leave my reader to supplement my criticism by a reference to the analyses that I have made before.

The argument begins by drawing the distinction between the sensory experience of the individual and the world of phenomenal truth to which science testifies. Here we have a contrast between the subjective order of phenomena and the objective order — between the mind and the external world.

It is important that he who draws this distinction should recognize clearly all that it implies. He should keep himself mindful of the fact that, when we occupy ourselves with the phenomena of the objective order, we should be careful to divest them of that subjective reference that marks the phenomena of the subjective order. He should remember that nothing that can legitimately be conceived to belong to the external world can justly be called a sensation, a percept, or a mental phenomenon of any description. These words have a definite meaning of their own which may not be disregarded — it is absurd to speak of a sensation as on a shelf, or of a percept as under a table.

Again. The argument notes the fact that the world of phenomenal truth to which science testifies is, *for us*, largely a conceptual world, *i.e.* the enormous complex of individual phenomena of which we conceive it to be made up is not known intuitively but known largely through representative symbols.

The remark is a just one. The objective order of phenomena is not to be confounded with a symbolic representation of that order in any mind, *i.e.* with certain phenomena in the subjective order. At the same time, it ought also to be borne in mind, that, if any mind could contain such a fulness of sensational experiences that knowing by means of symbols became unnecessary, such a fulness that the objective order could be directly mirrored

in the subjective, the contents of such a mind would by no means be identical with the external world. We should have, not the external world, but a complete intuitive *knowledge* of the external world. What is the difference between them? The difference is that, in the one case, we are talking of *sensational experiences* of a *mind*, and, in the other case, such subjective reference has been stripped away. We have no right to use the word "sensation" or the word "mind," without due regard to the significance that properly attaches to such words.

Now, we conceive the external world to be an immense complex of individual phenomena. Our mind contains a very inadequate representation of such a complex. Does the complex *exist?* Here Professor Royce appears to me to make two serious mistakes. First, he argues that, as we are not concerned with an Unknowable, but with such a world as seems to be given in an unsatisfactory way in our sensations, with an *experience*, we may assume that it can only exist in a mind. Can there be an *experience* except as it is *experienced?* If, then, there is a real world such as science testifies to, there is a mind in which it exists, *i.e.* God; or, if one so prefers to express it, it *is* a Divine Mind. Second, he tries to offer a proof that there is an external world.

It will be observed that Professor Royce's first error is an old one. Nearly two hundred years ago Berkeley distinguished between things as we perceive them — our fugitive perceptions of things — and things as continuously existing. As I have pointed out earlier, the distinction between the subjective order and the objective was not clear to him, and he conceived that nothing could exist save percepts. That things existed independently of *his* percepts, he could not but believe. Hence, he assumed a Divine Mind in which they could exist as percepts when he was not perceiving them.

Berkeley was misled in part by the word "idea"; Professor Royce is misled in part by the associations of the word "experience." If we cannot know the external world except as it is our "experience," — our sensations, a content in our mind, — we cannot know the external world at all, and we cannot even speak with a meaning of "our sensations," as I have tried to show at length in Chapter XXIII. If, however, we decide to use the word "experience" in a broad sense, and as covering both the phenomena of the subjective order and the phenomena of the ob-

jective order, we must remember that it applies both to what is mental and to what is not mental, but physical. What has really misled both Bishop Berkeley and Professor Royce is the fact that there is no phenomenon in the objective order which may not conceivably take its place in the subjective order. But we must not forget that, when it has its place in the subjective order, when it is regarded as sensation or as percept, it is no part of the external world.

It is well for the reader to remember in this connection that minds do not directly perceive each other even in a fragmentary way. I may not directly perceive very much of the external world, but Professor Royce himself allows me glimpses of it. Of another mind, I have not even glimpses directly given in my experience — *everything* is matter of inference. If the external world of science really were a mind, an experience in the narrower sense, a consciousness, a direct sense-knowledge of it would be an absurdity. It is a stepping-stone to a knowledge of other minds, as we have seen in previous chapters, but a mind it is not, nor does its existence have to be proved as we must prove the existence of every mind except our own. And this brings me to what I conceive to be Professor Royce's second error, — the attempt to prove the existence of the external world.

Professor Royce himself points out that the phenomenal world to which science testifies is not an arbitrary world. It is linked to our actual experience. That the scientific accounts of this world are true, at least in a measure, we are said to verify in so far as we start from given experiences, frame hypotheses, predict other experiences, and fulfil these predictions.

But what does this mean? It means that the experiences in question do belong to a certain order, the objective order, and can be *proved* to belong to this. They have their place in a system. Can we, however, be sure that the parts of the system not directly perceived *exist?*

This question we ought not to attempt to answer without examining carefully what we can mean by the assertion that anything exists, really exists. I have tried to show earlier, in discussing the nature of the external world, that when we speak of any physical thing as really existing, we mean no more than the assertion of its right to a place in the objective order. We do not mean that it is perceived — that is a very different thing; it

may be perceived or it may not be perceived; that has nothing to do with its right to a place in the order of nature. We do not mean that it is any one's sensation; what it must mean to be any one's sensation, I have explained at length. Thus, real existence in the external world is guaranteed to any phenomenon only in one way — the phenomenon in question must belong to a certain order of phenomena which is contrasted with, and should never be confused with, another order of phenomena, the subjective.

This is true of every single phenomenon which is referred to the external world. It is as true of our direct experiences as of those things arrived at by inference. This desk before me *really exists*. What can this mean? It means that certain phenomena are referred to the objective order. Abstract this reference and the words become quite meaningless. The real existence of this one experience is not a something independent of all other experiences. Men have often enough had what they supposed to be direct experiences of external things, and have by later experiences been compelled to relegate them to the realm of hallucination.

Now the phenomena of the objective order are as immediately known as the phenomena of the subjective order. That is to say, we do not start with sensations and infer an external world. What is a sensation? No answer can be given that does not recognize an external world and a mind contrasted with it. What can one mean by the phrase "my fragmentary experiences"? It is absolutely meaningless if we abstract from this same contrast. Can one say: Let us assume, for the moment, that nothing exists, save my fragmentary experiences? The man who says this should make clear to himself what he understands by the word "exist," by the word "my," and by the word "experience." When he has made this clear, he will realize that he is only making a feint of throwing away something. He is assuming his *direct experiences*, his *sensations*, to *exist*. How does he know these to be *direct* experiences, sensations? Only by reference to what he pretends to have thrown away.

But shall we not admit that the external world, the objective order of phenomena, is known by us largely by means of symbols? Of course. Let us, however, admit that the subjective order, our own mind, is known by us largely by means of symbols, as well. My "fragmentary experiences" of the world are not, as a whole,

present to me intuitively. The sensations which I have experienced during the past year, the past month, the past week, cannot possibly be represented by me in a single intuition. What is actually in the sense at this present moment is a very small part of "my fragmentary experiences." Shall I assume that the rest *have existed*, even if they do not *now* exist? What is meant by this *past* and this *present?* Is there a real time, and have these sensations really existed in real time? The truth is that he who would withdraw himself from the system of things, in order to prove that there is a system of things, never really withdraws himself from that system for a moment. He only pretends to do so.

It is, then, absurd to try to prove the existence of the external world. We know it as directly as we know our own minds. Do we know as much of it as we know of our own minds? That is a different question. But it is well to remember that we cannot start an argument with "our experiences"; that our experiences are in large measure symbolically known by us; and that the psychologist has laboriously to establish for us what our experiences are, much as the physicist establishes for us what exists in the external world.

It appears to me that these distinctions have not been clearly grasped by Professor Royce. He asks: What is the proof of the reality of an absolute experience, *i.e.* of a real external world? And he answers this question as follows: Let us suppose nothing exists save our finite experience. This then, is absolute truth, that there is nothing but this fragmentary experience. But if it is truth, it must be true for somebody. It is not true for us, for we do not know whether the fact is as stated. It must be true for somebody. There is then an absolute experience for whom it is true.

This I must briefly criticise, in the light of what has been said above, as follows: (1) The reality of the phenomena, which Professor Royce does not include in our fragmentary experiences, but to which science testifies, does not have to be proved in any other way than by showing that they severally do have their place in the order recognized by science and by the plain man. Their place in that order is the only conceivable guarantee of their reality. It is a mistake to suppose that we must first show that they belong to the order in question, and then go on to

prove that they are real. (2) It is not legitimate to begin an argument with the supposition that, beyond our finite experience, nothing exists. By "our finite experience" is presumably meant the fragmentary sensory experiences with which the argument has been concerned. Abstracted from the system of things, these experiences cannot be called fragmentary, cannot be recognized as sensory, and cannot be said to have real existence. (3) The statement that, if it be true that nothing exists save these fragments, it must be true to somebody, is an ingenious but very questionable adaptation of the Berkeleian error that there can be no existence save mental existence.

The last turn in the argument is not, I think, convincing even to those who may be inclined to agree with Berkeley in thinking that nothing can exist save in a mind. We are to permit the solipsist[1] to guarantee himself society by reasoning thus: Either somebody exists besides myself or nobody exists besides myself. I shall assume that nobody exists besides myself. This then is *true*. But, if it is true, it must be true to somebody. It is not true to me, for I am ignorant touching this matter. Hence, somebody exists besides myself.

What is the matter with this argument? We can best answer this question when we have seen with some clearness what it means to say that this or that is *true*.

Suppose I ask myself whether it is true that there are mountains on the other side of the moon. What can this mean. Professor Royce has pointed out with admirable clearness that the world of phenomena to which science testifies is not an arbitrary world. We cannot refer anything to it without good reason. What has a place in it must be related in certain ways to the "direct experiences" upon which he has dwelt. It is not always clear whether given phenomena stand in such relations to these direct experiences or whether they do not. Let us suppose that, in the present instance, the phenomena in question do stand in such a relation, I may then say: *It is true* that there are mountains on the other side of the moon. But it should be remarked that, when I say this, I do not say a whit more than when I say that there are mountains on the other side of the moon. The

[1] The man who starts out with direct "fragmentary experiences" must, of course, be a solipsist to begin with. Other minds are not included among his direct experiences.

truth is nothing superadded to the phenomena thus related to each other. The former expression is more emphatic than the latter, but it contains nothing more.

It is, however, one thing to say : There are mountains on the other side of the moon ; and it is quite another thing to say : I know that there are mountains on the other side of the moon. In the one case, certain phenomena are assigned a place in the objective order, and, in the other, we are concerned with a subjective order as well. In the latter instance an assertion is made, not only regarding the external world, but also regarding some one's knowledge of the external world. The distinction is one universally recognized, and it is important to realize all that it implies. The statement that it is true that there are mountains on the other side of the moon can only be confounded with the statement that some one knows it to be true that there are mountains on the other side of the moon by one who has never clearly grasped the distinction between the subjective order and the objective, the mind and the world. He who says. It is true that there are mountains on the other side of the moon, says no more than that that there are mountains on the other side of the moon. But he who says, some one knows this fact to be true, does say more ; he asserts the existence of certain mental phenomena not to be identified with anything in the objective order.

Now let us suppose that it is not clear that the phenomena in question do stand in the required relation to our direct experiences. We may then say : It is uncertain whether there are mountains on the other side of the moon ; but of so much we are certain : it is true, either that there are mountains on the other side of the moon, or that there are not. Let us see what is implied in this statement.

It is evident that the statement, if it is to be significant at all, implies a distinction between an order of things and our knowledge or ignorance of that order. It is not a statement regarding what is contained in that order. It is a recognition of the order and an affirmation of our ignorance regarding it. Is it a truth? Yes, it is a truth of a sort. There was an eclipse of the moon last year : a certain phenomenon is referred to the order of real things. There was not an eclipse of the moon last year : the phenomenon in question is excluded from the said order. There either was or was not an eclipse of the moon last year ; has any

affirmation been made about the reality of an eclipse? No, but it has been asserted that there is ignorance of an eclipse. Is this ignorance real? is it true that there is this ignorance? Only if we admit that there is such a thing as truth or reality. To be true, to be real, the ignorance must have its place in a system of things; and it must not be forgotten that, when we ask what sort of truth or reality we may attribute to the ignorance, we must find our answer in a reference to the sort of system to which the ignorance is supposed to belong.

Now suppose I say: nothing exists save *a*, *b*, and *c*. This means that *a*, *b*, and *c* constitute an order of real things, and only *a*, *b*, and *c* are to be found in that order. It means no more to say: *it is true* that *a*, *b*, and *c* constitute an order of things. The truth, the reality, is nothing apart from that order.

Bearing all this in mind, let us come back to the solipsist. Let us suppose him to say: "Either nothing exists save my fragmentary experience, or something exists beyond my fragmentary experience."

Let us remember that he is supposed to have absolutely nothing to start with save his "fragmentary experience." Out of this he must get all his notions of existence, possibility and impossibility, reality, truth. If he gets these elsewhere, he does not start with his fragmentary experience. He only makes a feint of it.

What can it mean to him to say what he has said? He can only mean: I do not know whether I should put together in the one order *a*, *b*, and *c*, and rest with that; or whether I may go on and add *d*. How shall he answer the query raised in this "should"? Evidently by an appeal to his fragmentary experience. To what else should he turn? There is for him no truth save that found in his fragmentary experience.

Suppose him to continue as follows: "I shall assume that nothing exists save my fragmentary experience. This then is *true*. But it is not really true to me. Hence it must be true to some other mind, and some other mind must exist." The fallacy in this reasoning is evident. The statement: it is true that nothing exists save my fragmentary experience, differs from the statement: nothing exists save my fragmentary experience, only in being more emphatic. The argument starts, then, with the assumption, that it is true that nothing exists save my fragmentary experience. This is, be it remembered, an *assumed* truth —

a something taken up for the sake of the argument. It is not shown from an examination of the fragmentary experience — the only data for proving anything — that this must be really true according to the standard of truth furnished by this fragmentary experience. It is, then, admittedly an *assumed* truth. But the solipsist argues: This truth is not really true for me (*i.e.* he remembers that it is assumed truth); but it is absolutely true (*i.e.* he forgets that it is an assumed truth); to be true, however, a truth must be true to somebody; therefore, it must be true (*i.e.* really true) to some one else.

It is clear that, in this argument, the solipsist forgets that there are only two kinds of truths which he has a right to recognize at all. There are assumed truths, which are assumed by himself; and there are real truths, which are real only in the sense that they can be justified by a reference to his fragments. If these fragments constitute a system, they can furnish a real truth — something may be true or real in the sense that it belongs to the system. If, however, we assume these fragments to be so fragmentary that they can furnish no real truth, distinct from assumptions, our solipsist is left with no truth at all save assumed truth. Then he may not argue: *This is not true for me, but it is true.* If it is not true for him, *i.e.* if it is not a truth discovered in the fragments which are his all, it is not a truth at all, in any sense that can mean anything to him. The fragments are his; any real truth which they contain or may contain is or may be his; the assumptions are his. Where in all this is there any truth which may be referred to any one else? Even the Berkeleian, who holds that nothing can be true except as it is known to be true, may see that we have here no truth that need be referred to any mind save that of the possessor of the fragments.

Why does an argument so defective succeed in puzzling us as this one has done? It is because neither Professor Royce nor his reader really abstracts from what he is supposed to be abstracting from at the outset of the argument. There slips in at the very beginning the recognition of the system of things which is not supposed to make its appearance until the close of the argument. We involuntarily allow our solipsist, not merely a truth which may be abstracted from his fragments, but a truth independent of this. Thus, the system of things does not emerge from the supposed fragments as conclusion follows premises.

It is not surprising that Professor Royce and his reader should fall into this confusion. As I have pointed out above, it is really not legitimate to begin with these supposed fragments. In calling them *fragments* we tacitly recognize a larger whole; we say they *exist*, and we do not mean to give the word a significance drawn wholly from the fragments themselves; we speak of them as *our experiences*, and the words are meaningless unless we recognize a system of things, with its distinction of subjective and objective.

I have been betrayed into criticising Professor Royce's argument at much greater length than I had intended. The purposes of this chapter might have been sufficiently served, had I contented myself with pointing out that the argument, whether good or bad, is, after all, only an argument to prove the existence of the external world recognized by science, and that it is only through a confusion that the external world can be identified with what men mean and have meant by God.

But I have thought it right to do much more, and for the following reason: the original contributions which American scholars have so far made to philosophy have not, I think, been very striking; in this argument Professor Royce offers us a bold, independent, and highly ingenious speculation; he does not speak as the echo of a school, and, whether we approve the course of his argument or do not, we must admit that he has a right to an attentive hearing and to a frank and searching criticism. It is only in exercising the independence in speculation which he has exemplified, and in exercising an equal independence in criticising each other's efforts, that we can hope to do something more than paraphrase the words of those who have preceded us.

CHAPTER XXXV

OF GOD (*Continued*)

Let us come back to the Argument from Design, the only one which, as I have said, has really been taken seriously by mankind. As it is commonly brought before us, it argues about as follows :[1]

Things are constantly happening in the world about us; these happenings must have their causes, and these causes, in turn, their causes; no chain of causes, however, can be endless, but must end in a First Cause; for, unless we assume a First Cause, we have really no cause at all, but only a series of effects or results, all of which are uncaused.

Again: Causes must be proportioned to effects. We always assume a builder to explain the building of a house; and if the plan of the house is particularly ingenious, we naturally infer that this is due to unusual ingenuity on the part of its author. To use a famous old illustration, no one, finding a watch in a desert place, would suppose that it had any other cause than the mind and hands of a watchmaker — the only thing we know capable of making a watch. If, now, we look at the world about us, do we not find on every side evidences of adaptation and apparent purpose? Are not means fitted to ends through the whole domain of nature, and is not the whole domain of nature one, a unit, a single system? If we go back to the cause of all this, must we not infer that there is but one First Cause, wise as well as powerful, who is the author of this harmonious plan, and the source of all its workings? And since the things we see indicate, not merely a plan, but a good plan, must we not infer that the Author of Nature is not merely a Mind, but a Good Mind — such a Being as we mean when we use the word "God"?

To this argument, as thus presented, there at once suggest

[1] Some of the following reflections I have presented before in a little work which has for years been out of print: "A Plain Argument for God;" Philadelphia, 1889.

themselves certain objections. For one thing, it is by no means self-evident that the series of causes and effects may not be endless. There is no more sense in saying that, unless there be a first cause, there is no cause at all, and there is only a series of effects, than there is in saying that, unless there be some last effect, which does not in turn become a cause, there is no effect at all, and there is only a series of causes. A cause is a cause in relation to what follows it, somewhat as a father is a father; we do not have to investigate its pedigree before we can affirm that it is a cause. This part of the argument looks like a premeditated attempt to get back just as far as one wishes to go, and to have an excuse for not going farther.

Perhaps I should say: to get back as far as one does *not* wish to go; for I am sure that those who use the argument have no desire to be carried back to the point to which it would logically carry them. Here we have a second objection to the argument, and a very grave one. The argument is deistic, not theistic, *i.e.* it gives one a God, not *now* revealed in the world, a present God, but a God whose only provable relation to the world is a thing of the past, and of a very remote past at that.

Suppose some one to say: "The argument is excellent, I accept it. I believe that God created the world and set nature in motion, but I believe that there His contact with the world ceased. There is no evidence that He is now in any direct relation with me, or is in any sense present. His action belongs to the past, not to the present." How will the champion of this argument answer that? May he try to answer it by pointing to evidences of God's wisdom or goodness as seen in the world to-day? He will at once be told that, according to his own argument, to prove God the author of this goodness he must go back to a First Cause.

It is worth while to examine a little more carefully this deistic notion that God was more directly revealed in some remote beginning of things than He is in the present. The distinction between a relatively direct and a relatively indirect revelation of mind is one with which we are familiar enough. We read an old letter, and we refer the mind which it reflects to the past; we talk with a friend, and we do not refer to the past the ideas which seem to be revealed. The man who picks up the watch above referred to accounts for it by going back to certain bodily motions which have taken place at some time in the past, and these bodily motions he

regards as revealing mind as directly as it is conceivable that another mind should be revealed. He does not, be it observed, ascend the chain of physical causes until that chain runs out altogether, and nothing more that is physical is forthcoming. He goes back a little way, and then turns aside to a something not physical, because he finds in the physical what he regards as a direct revelation of mind.

Yet his argument for a Divine mind discovers no *direct* evidence for mind until it arrives at a last link in the physical chain — a link which, if the teachings of science are to be accepted at all, we may assume to be much less clearly indicative of mind of any sort than what makes its appearance long after. It should be remembered that, in passing from this last link to God, he is taking a step which is not analogous to that which is taken when one passes from watch to watchmaker ; he is taking a step which is analogous to that which is taken when one passes from the watchmaker's body to his mind. Is it clear that such a view of things is reasonable ?

As the reader has observed, I have criticised the argument we are discussing without going much beyond the standpoint of the man who urges it. It is open to criticism even on this basis. But one may go farther and say, that the whole argument as above set forth moves in an atmosphere of what we may call "ready-made" conceptions — conceptions taken up and used without previous critical analysis. It will not be profitable to dwell upon it at greater length, and I shall leave it with the remark that it is not taken very seriously even by those who defend it, for it is a deistic argument, and I know of no deists alive at the present day. This seems to indicate rather clearly that its champions rest their belief in God, which is a belief in a present God, not upon this argument in this form, but on something else.

It should be remarked that the above criticisms are not directed against the contention that a Divine Mind is revealed in the world. They bear only upon the peculiar way in which that Mind is supposed to be related to the world. Hence, I must not be supposed to be objecting to the argument from design in general, but only to one of the forms in which it has found expression. Can it be expressed in a more reasonable form ?

Let us remember that we are in search of a mind. How can a mind be revealed? What does it mean to say that a mind

exists? These questions I have tried to answer in earlier chapters. We have seen that there is but one argument for minds, and that the existence of a mind means to us the same thing, whether we are concerned with minds of a higher or of a lower order. He who maintains, then, that the world as a whole reveals a Divine Mind, must, in the last analysis, maintain that there is some analogy between the world as a whole and a human body — he must attribute to the world something analogous to a soul.

Can it be *proved* that there is revealed in the world such a Soul or Mind, a something distinct from the little minds that we refer to individual organisms? The theistic zeal of Bishop Berkeley found the evidence for God quite as indubitable and far more abundant than the evidence for the existence of men's minds. He writes: "A human spirit or person is not perceived by sense, as not being an idea; when therefore we see the color, size, figure, and motions of a man, we perceive only certain sensations or ideas excited in our own minds; and these being exhibited to our view in sundry distinct collections, serve to mark out unto us the existence of finite and created spirits like ourselves. Hence it is plain we do not see a man — if by *man* is meant that which lives, moves, perceives, and thinks as we do — but only such a certain collection of ideas as directs us to think there is a distinct principle of thought and motion, like to ourselves, accompanying and represented by it. And after the same manner we see God; all the difference is that, whereas some one finite and narrow assemblage of ideas denotes a particular human mind, whithersoever we direct our view, we do at all times and in all places perceive manifest tokens of the Divinity — everything we see, hear, feel, or anywise perceive by sense, being a sign or effect of the power of God; as is our perception of those very motions which are produced by men."[1]

But it must be admitted that the inference that there is a God rests upon an analogy far more remote than that upon which we rest the inference that the minds of other men exist. It is perhaps conceivable that a man should maintain that there are no minds in existence save his own. Even those who have admitted that the assumption of the existence of other minds cannot be justified, have, however, unhesitatingly accepted the assumption. The analogy is too close, it is too little of a step from my mind to the

[1] "Principles," § 148.

mind of my neighbor, to make solipsism practically possible. No one save the metaphysician ever thinks it necessary to examine critically the evidence that other men have minds, and to point out its peculiar nature. On the other hand, there are few who think it unnecessary to offer proofs of God's existence. The labor and thought which men have in the ages past devoted to the subject, and which they still devote to it, is sufficient evidence that they have not thought and do not think they are dealing with what is self-evident and requires no proof.

And since the analogy in question is so remote a one, it need not surprise us to find even the man who is penetrated with the conviction that God exists, quite willing to confess that he stands in the presence of unsolved mysteries when he raises certain natural questions regarding the manner of His existence. Is the Divine Mind related to finite minds just as they are related to each other? This seems impossible, for, as Bishop Berkeley has recognized in the above-cited passage, the same phenomena which serve as a basis for an inference to finite minds seem also to serve as a basis for the inference to a Divine Mind. May we regard the Divine Mind as including finite minds — as partially, at least, made up of such? We know of no such relation between minds as seems to be implied in this. When such questions as these present themselves to him, there seems nothing else for a man to do than to confess his ignorance. And those who have done some reading in the history of philosophy and of theology will recall to mind the many emphatic expressions of ignorance which have sprung to the lips of those who have pondered upon the Divine Nature in the centuries past.

But if such are the limitations of human knowledge, is it possible to *prove* that God exists? To this, I think, we must answer that, if by the word "proof" is meant such definite evidence as must carry conviction to the heart of every fair-minded man before whom it is clearly placed, we cannot offer a proof of God's existence.

This amounts to saying that such a proof does not, at present at least, fall within the sphere of science. But I hasten to add that this does not necessarily imply that the man who believes in God does so groundlessly. There are a vast number of beliefs the justice of which cannot be scientifically established, unless we give this term an excessively broad application; and yet many of

these beliefs it is not reasonable to repudiate. The man who would cast out of his mind all beliefs for which he is not in a position to offer definite and detailed evidence should first reflect upon the extraordinary denudation of his mind which must result from such a procedure. We walk by faith much of the time, and sometimes we have no choice save to walk where the clear light of assured knowledge does not reach.

I beg the reader to bear in mind what has been said in Chapters XXVII and XXVIII of our knowledge of other minds. It is a knowledge which we must all admit to be neither very exact nor very extensive. Some things we seem to know rather clearly, but our knowledge gradually fades out into such utter indefiniteness that, beyond a certain point, we are willing frankly to admit that we are in the region of mere conjecture. And we should not overlook the fact that we believe regarding other minds, and hold that we are justified in believing, many things that it is quite impossible to prove by the adduction of detailed evidence. From indescribable shadings of expression, from trifling hints and gestures, we come to a conviction about a man's character, and we are not in a position to say why we think of him as we do. We take refuge in certain rather vague phrases: "I *feel* that the man is insincere;" "he makes upon me an unpleasant *impression*;" "he inspires me with an instinctive confidence." The fact that our conviction cannot be justified in detail does not prove that it is without foundation. Convictions resting upon no better evidence have constantly turned out in the sequel to be well founded.

All of which means that we may make inferences touching minds without being able as yet to bring such inferences under the head of truths scientifically proved. The inference to the existence of God appears to be of much the same nature. To many men — and not necessarily to the ignorant and the unreflective — the conviction that a Divine Mind is revealed in the world seems an irresistible one. They may point out in a general way the sort of phenomena that influence them the most strongly to the adoption of such a belief. From the sketch of a Bridgewater Treatise developed by Socrates in his conversation with Aristodemus the Little, as reported by Xenophon,[1] to the most recent works on final causes and evidences of design, we have a long list

[1] "Memorabilia," I, 4.

of such attempts. Such works strengthen the convictions of some men, and some they leave unconvinced. It is scarcely too much to say that if his experience of the world and the facts of his own life do not at least incline a man to recognize the analogy upon which the inference of God's existence rests, it is not likely that he will be convinced by reading.

With those who do admit the analogy, I am glad to enroll myself. But I think it is important to recognize that the analogy is a remote one. One gains nothing by pretending to more information than one really has, or by confusing Faith with established knowledge. And if one bears in mind the nature of our evidence for God and the limitations of our knowledge of Him, one can read with new sympathy certain passages from the old theologians, which the modern man is apt to approach with something akin to irritation.

For example, when Augustine tells us that we are to think of God as "good without quality, great without quantity, a creator though lacking nothing, controlling things but without spatial position, containing all things without being qualified or determined, in no place and yet everywhere present in his totality, eternal without time, making things that are changeable without any change in himself, and passive in no respect" — when Augustine tells us that we are thus to think of God, we may admit that his words, taken literally, are absurd, and yet may value the thought that underlies them. Their author is evidently struggling with the reflection that, if we think of God at all, we must think in terms which draw their significance from our own experience, and that this carries with it a danger that we shall not make due allowance for the difference between the Divine Mind and the human.

It should not be overlooked that it is possible so to emphasize this difference as to do away altogether with the ground for an inference to the existence of God. The effort to avoid anthropomorphism — the attribution to God of a nature akin to that of man — has again and again resulted in making the word "God" a meaningless symbol; which is, properly speaking, no symbol at all.

As the reader has seen, there is no argument for the existence of another mind that is not, in a sense, anthropomorphic. No mind is revealed to another mind directly; it is inferred, not per-

ceived. And I could make no inference at all, did I not perceive some analogy between the actions of my own body and those of other bodies. Where the analogy is close, I infer a mind closely similar to my own; where it is perceived to be more remote, but still unmistakably an analogy, I infer a mind somewhat different. But the inference to a mind *totally* different from my own is an absurdity. There remains nothing on which to found an inference, on the one hand, and, on the other, the mind inferred is denied every shred of meaning, *i.e.* there is no possible reason for calling it a mind.

There is, then, such a thing as a legitimate anthropomorphism in reasoning about other minds. There is evidently also an anthropomorphism that is illegitimate. The fables that attribute sound reflections and reasonable discourse to the brutes assume such for a purpose, and no one is deceived. But in countless instances we do deceive ourselves by attributing to creatures below man a degree of intelligence which we are not warranted in attributing to them. The remedy for such errors is to be found in a more careful examination of the evidence, not in a general denial of all ground for inference of any sort. Much the same thing may be said touching our conception of a Divine Mind. In a sense, every such conception must be anthropomorphic, and the admission of this truth need startle no one who is not more or less of a slave to the associations which attach to words.

With this I bring to an end what I have to say touching the nature of the evidence for a Divine Mind. He who finds such revealed in the world cannot regard the world as dead and meaningless, nor can he deplore the fact that the realm of minds has shrunk to insignificant proportions. To him it is no longer a fact. Everywhere he is in the presence of life; of a Life in which, as he believes, he very literally lives and moves and has his being. And he may take much comfort in this thought, while frankly admitting that he knows little of this Life, and that his belief is a something that reaches beyond the present borders of science.

There is one more topic upon which I should, perhaps, touch briefly before bringing this volume to a close, and that is the immortality of the soul. It is not the duty of the metaphysician to prove the immortality of the soul, just as it is not his duty to

prove the existence of God or the existence of any particular man. But he can scarcely refuse to examine the conceptions of which men make use when they argue on the subject, for such conceptions evidently call for metaphysical analysis, and there is danger in taking them up uncritically.

The discriminating reader has, I hope, observed that the acceptance of the doctrine contained in the preceding chapters does not imply a rejection of the doctrine of immortality. It has been pointed out that we can best represent to ourselves the relations of minds and bodies under the figure of parallelism. One who accepts this view of the relation may, it is true, feel impelled to infer that the dissolution of the body implies the disappearance of the mind, which has been referred to it, from the realm of existing things. But the inference is, I think, only justified in case one has no positive reason for believing that minds continue to exist. It has been frankly admitted that our knowledge of the relations of mental phenomena and physical phenomena is an extremely vague and indefinite knowledge. We may accept all that psychology and physiology have to tell us, and still confess that we are in complete ignorance of the *immediate* physical basis of any psychical fact. Neither of the world of matter nor of the world of mind have we such complete information that we are able to say with assurance that what appears to us as the destruction of the body is necessarily the destruction of the physical basis of the mind which has been revealed by it.

Out of our ignorance upon such matters there have sprung up various speculations touching the existence of a "meta-organism," which may continue to exist, and which may still serve as the physical basis of mind. The parallelist has as much right as another to accept such speculations. If he be wise, he will bear in mind, however, that he is here guessing at possibilities, and not reasoning upon a basis of observed fact. These speculations cannot be regarded as falling under the head of science, and the man of science not already impelled to believe in immortality would probably in no instance consider them seriously. Still, we must, I think, admit that such considerations as have been adduced at least serve to indicate that the belief in the immortality of the soul is not necessarily excluded by our knowledge, such as it is, of the facts of the physical world and of the mental world.

In discussing the immortality of the soul, it is well to under-

stand clearly what those words may legitimately mean. We recognize that minds exist during a longer or shorter term of years, and that, at the end of that time, the evidence for their existence disappears. The statement that they are immortal is tantamount to the statement that this disappearance of evidence is to be set down to our ignorance. Did we know more, we should still find evidence of their existence.

This means that we are not to conceive of them as existing as *disembodied spirits*. What can we mean by the existence of a disembodied spirit? We have seen that to affirm *real existence* of anything is to assign it a place in the system of things. We have also seen, in studying the difficulties into which the subjective idealist falls, that, if we repudiate the physical world, we are left without a system of things. A physical thing that exists nowhere and at no time does not *exist*. It is equally true that a mind that exists nowhere and at no time[1] does not exist. A disembodied spirit is such a mind.

Again. Although we must believe that any mind which continues to exist after the death of the body still holds a relation to the physical world at least analogous to that which it held before, we must not turn the mind into a physical thing, and establish the fact of its immortality by arguments which have a significance only when one is dealing with what is physical. For example, we must set aside all such arguments for immortality as that upon which Bishop Butler lays such emphasis in his famous "Analogy" — we must not argue from the unity of consciousness to the "indiscerptibility" of the soul. He who believes that his mind will survive the shock of dissolution because it is too small to split, materializes the mind and evidently misconceives the unity of consciousness.

Still again. We must be on our guard against specious arguments drawn from a misconception of the nature of *time* — arguments which would demonstrate the immortality of the soul somewhat as the arguments criticised in the last chapter would demonstrate the existence of God.

Thus, we may not argue that, since time is not something *beyond* the mind, but is *in* the mind, it is impossible that the mind should come to an end of existence in time. Such an argument palpably confuses subjective and objective, and ignores that real

[1] See Chapter XXIV.

system of things spread out in space and time, in which minds and bodies have their part. He who falls into such an error can make no distinction between what seems and what is; he is robbed of his real world.

Nor may we save ourselves the trouble of proving that the mind will continue to exist after death, by taking refuge in that logical monstrosity, a timeless eternity. He who wishes to persuade us that there may be such a thing as a non-spatial ubiquity must convince us that the word "ubiquity" still means something, after all reference to space and to position in space has been abstracted from; and he who attributes to the mind a timeless eternity should show clearly that the word "eternity" is not a mere sound when *all* reference to time has been stripped away. It should not be forgotten that a mind, whose mode of existence — may I use the expression? — is *timeless*, is a mind which *never has* existed, *does not now* exist, and *never will* exist. But I have criticised at length this curious conception of a timeless eternity in a special monograph,[1] and I shall not dwell upon it here. It is sufficient to say that no account of it has yet been given which does not surreptitiously introduce the notion of time.

If we refuse to follow such doubtful by-paths to a knowledge of the immortality of the mind, in what direction shall we look for a road that may lead us to our goal? I know of but one. If the world impresses us as a world of purposes and ends, a world in which God is revealed, we may cherish the hope that in the Divine plan there is room for the fulfilment of the aspirations of man. It is scarcely necessary to say that, in cherishing this hope, we walk by Faith.

[1] On Spinozistic Immortality. Philadelphia, 1899.

NOTE ON THE PHYSICAL WORLD-ORDER

BY

EDGAR A. SINGER, JR.

It is a matter of common experience that we know something of the meaning of the term *body* and of the distribution of *bodies in space and time* before we are acquainted with those physical laws which, where they are known, enable us to describe bodies in new ways and to arrange them in that system which we call the physical world.

The task of discovering these laws, of effecting these descriptions, of constructing this system, belongs to a group of sciences, which, though differing *inter se*, we are accustomed to include under the single name of *physical science*. I say we are accustomed to refer to a single physical science: I mean we constantly hear such questions as these: What is the *physical* basis of life? How far are differences of civilization due to *physical*, how far to economic, etc., causes? These and similar questions lead us to contrast a science of physical causes with such sciences as biology, psychology, and sociology. But just what sciences are included under the head of the physical, and on what ground they are included is by no means an easy matter to determine. Perhaps all would admit to this class the sciences of physics and chemistry; some, with Helmholtz, would include geometry; others, with the "mechanists," would include biology. But even if we confine ourselves to general physics and chemistry, there are still to be noted wide differences in method. Between mechanics, say, and chemistry, these differences are of sufficient importance to make the problem of finding a common nature in the two branches of science an extremely difficult one.

Nevertheless, I think we can frame a definition which, if applied to the sciences actually known, would bring into one class those which are usually included under the head of physical science, and explain the uncertainty in which we remain concerning others.

I venture to say, then, that *a physical science is one which employs in its description of nature only such terms as can adequately be defined by the use of the measuring rod.*

What is here meant by the *description of nature* offered by a science will best be understood if we consider a typical scientific problem:

Given a group of bodies, in which are to be found certain conditions, such as position, volume, mass, temperature, etc., what changes of condition are these bodies going to undergo? To answer this question we should have to be in possession of a law which connects these conditions with one another and with time. The *description of nature* offered by a science is nothing other than the law or series of laws which it has formulated.

Now, our definition asserts that such a law is a physical law, if to understand its meaning and to verify its truth no knowledge is presupposed other than such as is involved in the use of the measuring rod. In examining the application of this definition to known sciences, its import will be seen more clearly.

The use of the measuring rod, *i.e.* the description of the procedure by which we may determine the ratio of two lengths, is established in certain of the axioms of geometry. All the axioms are not devoted to this description; some explain the way in which, knowing how to determine the ratio of two lengths, we may determine the relative magnitudes of two angles. We may say, therefore, that all that portion of geometry which is not a definition of measurement, but which records the results of measurement, falls under our definition of a physical science.

Next let us turn to the science of mechanics, and by way of fixing our thoughts we may consider a particular law of mechanics, say, the law of gravitation. This law is of such a nature that in order to apply it to a group of bodies we are obliged to know the mass of each body, its position, and the velocity with which it is moving. Applying the law, we can calculate the values which these conditions will assume at any moment. Now, of the terms used in this description, the positions of the bodies would evidently be determined by the use of the measuring rod in conformity with the principles of geometry; but when we describe the motion of bodies we are obliged to introduce such terms as velocity and acceleration. These terms stand for quantities and are susceptible of measurement, but in determining their values it is not sufficient to measure space magnitudes; we are obliged also to measure periods of *time*. It may not at once be apparent in what sense time can be determined by the use of the measuring rod, yet the physicist defines time as the hour-angle of a certain star, and this angle is, in the last resort, determined by measurements of length. Time, therefore, and consequently such ratios of space and time as velocity and acceleration, are determined by the use of the measuring rod.

Finally, in our mechanical example we have had to make use of the term *mass*. This once more appears in our law as a quantity susceptible of measurement; but in what sense can this measurement be

effected by the use of the measuring rod? The mass of a body is not determined by its geometrical form or by its volume, for two bodies of exactly the same form or of the same volume may have different masses ascribed to them; and to suppose with Democritus that bodies are made up of atoms which themselves differ in mass only as they differ in volume, would carry us beyond the limits of scientific experience. It is not necessary to introduce any venturesome hypothesis in order to understand in what sense the physicist's determination of the mass of a body depends solely upon measurements of length. Indeed, in the simplest instrument for determining mass, *viz.* the balance, it is at once evident that no observations are made except observations of position. This, to be sure, is a determination of mass under particular conditions; but it can easily be shown that the most general definition of mass which the physicist can frame is stated in terms of positions and motions involving only such quantities as can be determined by the use of the measuring rod.[1]

It is clear, then, that if the science of mechanics were nothing but an application of the law of gravitation, it would fall within the class of physical sciences as here defined. Now, although the science of mechanics may include other laws than that of gravitation, these other laws must yet resemble the law of gravitation in that the only terms which they employ are ultimately definable in terms of mass, length, and time. What has been said, therefore, of these terms as they occur in the law of gravitation, might be said of them with equal truth as they occur in any other law of mechanics. So that we may conclude that the science of mechanics employs in its description of nature only such terms as may be understood by the use of the measuring rod, and that consequently it falls within our definition of a physical science.

The other sciences that are ordinarily recognized as physical build on the mechanical basis, *i.e.* the new terms which they introduce into their description of nature involve in their definition the three whose meaning has been fixed by mechanics. A complete description of these new terms would lie outside the plan of the present paper. We may, however, indicate the lines which such a discussion would follow, by considering the sense in which the *units* introduced into general physics are in the end determined by the use of the measuring rod.

Thus, a *unit quantity of heat* is the quantity required to raise a unit mass of water one degree centigrade. The term "mass" we have already considered: it need hardly be pointed out that the ordinary measure of temperature, — the expansion of mercury, — is a linear one, while a degree of absolute temperature is defined by Thompson in terms of mechanical work. Again, a *unit quantity of electricity* is

[1] *Vide* Mach, "Mechanics in its Development," ed. 2, p. 243.

the quantity which acts on a similar quantity with unit force at unit distance. Now a unit force is one which would impart to unit mass a unit acceleration. The measure is therefore based upon mechanics, and the instrument actually used in the measurement, say Coulomb's torsion balance, is read in degrees of arc. As a last example, a *unit atomic mass*, though difficult to define, involves no measurements save those which determine mass and volume.

These units which enter into the different physical sciences reveal in a characteristic way the nature of the sciences. It is only when we are in possession of the fundamental laws of a science that we can define the meaning of such units. This discussion of them will suggest the way in which a complete examination of the physical sciences with respect to their definition would have to be made. I shall take it to be sufficiently established for our purpose, that physical sciences describe nature in terms whose meaning depends wholly on the use of the measuring rod. So defined, we see that they would include the known sciences of mechanics, general physics, and chemistry; but what sciences, if any, would such a definition exclude?

Suppose one were asked: What is the future of republican institutions? or, What is the cause of the decay of the drama? Would a reasonable person be likely to arm himself with a foot-rule with which to discover the answers to these questions? And yet such questions have a meaning. The demand of the one for prediction and of the other for explanation is a scientific demand, and a scientific effort can be made to meet it. Only it seems scarcely sensible to ask one to put these problems in such wise that a measuring rod would play any part in the solving of them.

Take another question: Why did the picture of a summer day in another land come into my mind just now as I looked out upon a bleak landscape? I search among my ideas for *links of association*. The law of association with which I am for the moment satisfied can apparently not be expressed in terms reducible to space measurements. Even the observation of living organisms whose simpler forms behave in a way that we are more and more inclined to regard as determined by physical and chemical laws, gives rise to terms and laws that seem to have no reference to the foot-rule. *Habit*, *inheritance*, *variation*, *natural selection*, — these terms mean something; they describe conditions we can recognize; the laws have a significance; on the basis of given conditions they serve us in prediction and explanation. We are evidently dealing with a science, but with one which appears to fall without our definition of a physical science.

It would seem, then, that there might be sciences pursuing methods other than physical, at least there is a reason for thinking so sufficient

to have given rise to interesting problems concerning the possible limits of the physical image of nature. For example, the question has often arisen in the history of reflective thought: To what extent have we a right to expect that for every definable natural phenomenon a physical explanation may be found? We may illustrate the meaning of the question, as well as indicate its answer, by a particular example.

We said that physical science devotes itself to the study of objects in space and time, so far as their behavior is ultimately describable in terms of the measuring rod. Among the bodies whose behavior is thus describable are the bodies of our fellow-men, and our own. The body of my neighbor yonder would fall from a height to the earth with the same acceleration as would a stone. The physics and chemistry of the processes of nutrition, secretion, etc., going on in his body are becoming better known. Even that portion of its activity which we are accustomed to regard as deliberate, and which sufficiently distinguishes his body as animate and conscious, may still resemble the behavior of an inanimate machine in its obedience to such laws as that of the conservation of energy. Have we not, therefore, every reason to suppose that, with advancing science, that particular natural phenomenon, — the behavior of a given human being, — will receive a physical explanation?

No sooner, however, do we conceive a hope of receiving a physical answer to the kind of question respecting our neighbor's behavior that we have instanced, than it occurs to us that there are many questions respecting such behavior to which we would not expect a physical answer. The beautiful old illustration that Plato gives in the Phædo will serve us here. Socrates, it will be remembered, was sitting in prison awaiting his execution. The painful interval remaining was to be whiled away in pleasant discourse with his disciples on the immortality of the soul. In the course of the discussion Socrates is led to consider in what different ways things may be explained. He recalls the enthusiasm with which he first learned that Anaxagoras, instead of resting satisfied with the old order of mechanical causes, had sought to show how "mind was the disposer and cause of all." But he was quickly undeceived: —

"What hopes I had formed, and how grievously was I disappointed! As I proceeded, I found my philosopher altogether forsaking mind or any other principle of order, but having recourse to air, and ether, and water, and other eccentricities. I might compare him to a person who began by maintaining generally that mind is the cause of the actions of Socrates, but who, when he endeavored to explain the causes of my several actions in detail, went on to show that I sit here because my body is made up of bones and muscles; and the bones, as he would

say, are hard and have ligaments which divide them, and the muscles are elastic, and they cover the bones, which have also a covering or environment of flesh and skin which contains them; and as the bones are lifted at their joints by the contraction or relaxation of the muscles, I am able to bend my limbs, and this is why I am sitting here in a curved posture; that is what he would say, and he would have a similar explanation of my talking to you, which he would attribute to sound, and air, and hearing, and he would assign ten thousand other causes of the same sort, forgetting to mention the true cause, which is, that the Athenians have thought fit to condemn me, and accordingly I have thought it better and more right to remain here and undergo my sentence; for I am inclined to think that these muscles and bones of mine would have gone off to Megara or Bœotia, — by the dog of Egypt they would — if they had been guided only by their own idea of what was best, and if I had not chosen as the better and nobler part, instead of playing truant and running away, to undergo any punishment which the state inflicts. There is surely a strange confusion of causes and conditions in all this. It may be said, indeed, that without bones and muscles, and the other parts of the body, I cannot execute my purposes. But to say that I do as I do because of them, and that this is the way in which mind acts, and not from the choice of the best, is a very careless and idle mode of speaking. I wonder that they cannot distinguish the cause from the condition, which the many, feeling about in the dark, are always mistaking and misnaming."

There is here a physical situation which Plato roughly outlines, but to have this situation pointed out to us in reply to our question, Why, Socrates, are you sitting here? strikes us as droll. Besides the physical questions respecting Socrates' behavior and the physical answers which in the course of time we may hope these questions will receive, there would seem to be other questions which are not physical, and to which we can neither hope, desire, nor conceive a physical answer.

To reconcile these two points of view an assumption has sometimes been made which will illustrate very well one sense in which physical science has been supposed to be of limited application to nature. The assumption is, — and we may suppose Descartes to make it, — that in spite of the fact that most of the behavior of a human body is capable of explanation in terms of physical science, yet not all of its behavior is so. Even if we were in possession of the most complete physical knowledge, a part of that behavior would remain unpredictable on physical grounds. This part is not, perhaps, inexplicable, but if we try to explain it, it must be in terms which have no physical meaning, *e.g.* in terms of motives. In our example it was the suggestion of a

physical explanation for this part of Socrates' behavior which furnished the comic element in Plato's sketch.

This way of looking at the matter would seem to be intelligible, at least. We find a ship propelled by a physically describable machine, but to explain its whole behavior we should have to take into account the helmsman, who is no part of that machine. The human body is analogous. It is a machine directed by a soul, which is no part of that machine. The part of this conception which demands our immediate attention is not the introduction of the soul, but the hypothesis of an incomplete physical machine. We are not concerned with the adequacy of the non-physical filling, but with the assumption of the physical gap. The assumption is, that part of the behavior of an object in space and time cannot be explained in physical terms.

With regard to this hypothesis I need not ask, Is it true? but rather, Is it intelligible? does it really mean anything? In the first place, it will be noted that the hypothesis in question is not an attempt to point out our actual inability to give a physical explanation of a certain phenomenon. This inability every one would admit. The point of the whole hypothesis is that the phenomenon is assumed to be essentially inexplicable in physical terms. What, we ask, does *essentially inexplicable* mean in this connection?

By way of leading up to this special question let us ask a more general one: When is any phenomenon shown to be inexplicable in terms of any given law? That we do constantly assume phenomena to be inexplicable in terms of a given law, hardly needs illustration, but to give one, — the turning of a galvanometer needle under the influence of a current is said to be inexplicable in terms of the law of gravitation. But why?

Here we must go step by step, and let us begin with a very simple case. If I dip the end of a capillary tube into a tank of water, the water will rise in the tube and remain stationary at a certain distance above the level of the water in the tank. This phenomenon is described as a case of capillary attraction, and it was once supposed that capillary attraction might be explained in terms of the law of gravitation. It is now generally admitted that no such explanation is possible. In what does the proof of this impossibility consist? To say that the rise of water in the capillary tube cannot be the result of gravitation would at first suggest nothing more than the perfectly evident reflection that the mass represented by the little column in the tube cannot be repelled from the centre of the earth in conformity with a law which provides for the attraction of masses.

But with this obvious conclusion might come a new suggestion: if we consider the walls of glass and the column of water to be made up

of molecules of glass and water respectively, could we not make such hypotheses respecting the masses and the interstitial distances of these molecules as would reveal the rise of a mass against gravity to be really a case of the same law of gravitation? The question is meaningful, and if we are at liberty to distribute the masses and the distances without further restriction than that the sum of the molecular masses should equal the gross mass, the spatial arrangement of the molecules conform with the gross dimensions of the bodies, we should, no doubt, be able to explain the phenomenon of capillarity on a gravitational basis. But the question at once arises, Are we free to distribute masses and assume distances without other restrictions than those mentioned? Such might be the case if the phenomenon of capillarity were the only one which led us to assume a molecular structure of bodies. As it is, however, the size of molecules and their distances have been fixed by observations quite independent of the phenomenon of capillary attraction, and they have been fixed in such a way that without revolutionizing the rest of molecular physics, those particular phenomena cannot be explained in terms of the law of gravitation.

This, then, is the sense in which, in the actual pursuit of science, we say that a given fact cannot be explained by a given law. But it will be remarked that this demonstration is of a somewhat hesitating kind. So much depends upon our definition of the phenomenon we are called upon to explain. Define it in one way, it is inexplicable; define it in another way, it is explicable. These two or more ways of defining a phenomenon are necessarily consistent but they are sufficiently different to make it possible to return the answer *yes* and *no* to the same question. How can we ever be sure that we have obtained a final *no* to the question, Can such and such a phenomenon be so and so explained? The most that we can say is this: the given phenomenon cannot be explained by the given law, *unless* we describe the phenomenon in a way which would only be permissible in case we made changes of such and such magnitude in our accepted scientific conceptions. Nevertheless, let us take this demonstration of the inexplicability of a given phenomenon by a given law as the nearest approach we can make to absolute demonstration: let us admit that it offers all that can be demanded of such a demonstration. The question arises, Under what conditions has it a meaning to ask for such a demonstration of inexplicability?

If I mix a kilogram of water at 50° C. with a kilogram of water at 100° C. without allowing any heat to escape, the resulting mixture will have a temperature of 75° C. Can this phenomenon be explained by the law of gravitation? It seems absurd to ask such a question. We no longer seek to demonstrate the impossibility of the explanation

demanded: we are satisfied with an immediate insight into the meaninglessness of the proposition. Evidently, we say, it is impossible that a phenomenon for whose description we require the term "temperature" should be susceptible of explanation by a law in which the term "temperature" does not even occur. Capillary phenomena may not be explicable by the law of gravitation, but they are at least describable in the dimensions of that law, to wit, the dimensions of mass, length, and time. It is therefore meaningful to ask whether such phenomena be explicable in terms of this law, and we require a demonstration of the law's failure to explain before we answer in the negative. But the suggestion that a phenomenon describable in one set of dimensions should be explicable by a law applying to another set of dimensions, is one that it would occur to no one seriously to offer.

If it be meaningless to ask for a mechanical explanation of the phenomena of heat, so long as these phenomena are described in terms of temperature, there is, nevertheless, a way in which we may redescribe the phenomena of heat without making use of this non-mechanical term, and when we have so redescribed the phenomena the search for a mechanical explanation of them no longer presents an absurdity. Suppose in our example we were to describe the water of higher temperature as a body whose molecules were vibrating with a certain average velocity, and the water of lower temperature as one whose molecules were vibrating with another and lower average velocity. Now let us picture to ourselves that in the mixing of these two masses of water the redistribution of velocities takes place according to the known laws of impact of elastic bodies, giving a mean average velocity for the mixture. We should then have given a mechanical explanation of the phenomenon of mixture, having first, however, given it a mechanical description.

The moment it becomes meaningful to ask whether a phenomenon be explicable in terms of a given law, at that moment it becomes necessary to demonstrate the impossibility of such an explanation before accepting a negative answer to the question. The search for the mechanical explanation of physical phenomena is one of the significant movements of physical science, and we observe the conditions to the success of this search. They are, first, the restatement of the problem in mechanical terms; and second, the finding of a law in which these terms may be connected. We have seen (in the example of the phenomenon of capillary attraction and the law of gravitation) the sense in which a phenomenon describable in mechanical terms may be demonstrated to be inexplicable by *a given* law connecting such terms. We now ask whether any such demonstration could be given of the impossibility of the more general task of explaining a given

mechanical phenomenon in terms of *any* mechanical law. In the first case the demonstration was one only when we placed upon ourselves certain restrictions as to the nature of the assumptions that could be made. In the present case, too, demonstration would evidently be possible only in case we were able to find similar (though perhaps much broader) restrictions. If, for example, we were to understand by a mechanical explanation not merely one that was conceived in terms of mass, length, and time, but further one that was required to conform to particular axioms (the axioms, say, of Newton's mechanics) it is conceivable, — yes, it has even been suggested, — that certain physical phenomena could receive no mechanical explanation. But if we free ourselves from all restrictions, it follows from what has gone before that no such demonstration would be possible. It would therefore be meaningless to make the hypothesis that a mechanical phenomenon was inexplicable in mechanical terms. It would evidently be equally meaningless to make the no more restricted hypothesis that a given physical phenomenon, *i.e.* a phenomenon capable of physical description, was inexplicable in physical terms.

We have now seen in what cases it is meaningful and in what cases it is meaningless to make the hypothesis that a given phenomenon is inexplicable in terms of a given law: —

(1) If inexplicable is to mean anything more than unexplained, we must intend the inadequacy of the type of explanation sought to be demonstrable.

(2) We see that such a demonstration could have a meaning, although a relative one, in case we were required to explain a phenomenon describable in certain terms by means of a special law connecting these terms (*e.g.* to explain capillarity by the law of gravitation).

(3) Under this head would fall also the case in which we were required to explain a phenomenon describable in one set of terms by a special law connecting another set of terms, provided we were first able to redescribe the phenomenon in the terms of the law (*e.g.* the case in which we were asked to explain the phenomenon of the heat of mixtures in terms of the law of impact of elastic bodies).

(4) It is meaningless to seek for a demonstration of the inexplicability by a given law of a phenomenon described in another set of terms without first redescribing the phenomenon in the terms of the law (*e.g.* to seek a mechanical explanation of the phenomenon of the heat of mixtures, described in terms of temperature).

(5) And finally it is meaningless to ask for a demonstration of the inexplicability of a given phenomenon in terms of a law upon which no restriction is laid (*e.g.* the inexplicability of mechanical phenomena

in terms of mechanical law, of physical phenomena in terms of physical law).

We may now apply these results to the problem of human conduct as exemplifying a phenomenon the possibility of whose physical explanation has been doubted. We asked in what sense it had a meaning to make the hypothesis that such a phenomenon was incapable of physical explanation. We have now seen that it can only have a meaning to make such an hypothesis in case it has a meaning to ask for a demonstration of the impossibility that is asserted. Now it is a matter of common experience that the conduct of a human being may be described and explained by means of certain laws, — laws, for example, in which the terms "motive" and "character" occur, — long before it is possible to give any physical explanation of that conduct. Has it any meaning to suggest that the conduct thus described and explained in terms of motive and character may eternally lack a physical explanation? Evidently the case is analogous to that in which we ask for a mechanical explanation of heat without first interpreting the phenomena involved in mechanical terms. The inexplicability is indeed eternal in about the same sense that the problem of finding the number of square inches in a cubic foot is eternally insoluble. But it need scarcely be said that to admit this inexplicability is not to assert that we have found a physical phenomenon which must eternally lack a physical explanation. We have found no gap in the order of the physical world.

The problem is, however, an entirely different one if we state it in the Cartesian way. For Descartes, the phenomenon to which a physical explanation was denied was already described in physical terms, say in terms of a slight displacement of the pineal gland. The hypothesis that such a physically described event should be eternally lacking a physical explanation is, as we have seen, meaningless, for the reason that it can have no meaning to ask for a demonstration of the inexplicability asserted. We may conclude, therefore, that this interesting phenomenon of human conduct offers us no illustration of a possible inadequacy of a physical explanation. It has only been supposed to do so either (1) because it was described in terms that were themselves not physical, — in which case physical explanation is neither possible nor is it lacking, — or (2) because, although described in physical terms, certain tacit restrictions are placed upon the nature of the physical laws which we contemplate; as when in our example of the boat we tacitly restrict the meaning of physical law in such wise as to include the mechanism of propulsion but to exclude the activity of the helmsman from its possible scope.

This somewhat lengthy analysis of a concrete example will enable

us to answer the question that suggested it, to wit: What would a non-physical science mean? There seem to be sciences that formulate laws in terms that cannot be defined by the use of the measuring rod. Is then the ability to explain and to predict in physical terms an essentially limited one? Or may the non-physical sciences coëxist with the physical without limiting them?

In the light of our previous study I think we can see in what sense the latter may be the case. It might perfectly well be that every phenomenon that was capable of a physical description (*e.g.* the motion of every particle of matter in the universe) was also susceptible of a physical explanation, and yet that such phenomena might be so grouped in new classes as also to be subject to non-physical description and explanation. For example, any clock or watch is a simple mechanism, every detail of whose behavior is susceptible of a physical description and explanation. Yet there is no common physical description, *i.e.* no physical definition of a "time-keeper," including such heterogeneous mechanisms as a spring-watch, a pendulum clock, a water-clock, an hour glass, a sun-dial. These are grouped together, not because of their resemblant mechanisms, but because of their common function. Only from this point of view can we speak of a "good" or "bad" time-keeper. Now to ask "Why are dollar watches bad time-keepers?" is a question to which the answer, "because of their cheap construction," would be satisfactory. The general rule "cheap watches are poor time-keepers" is a true law, but neither "time-keeper," "poor," nor "cheap" are terms of a physical nature. Yet in a watch that keeps "poor time" there is some physical condition, explicable by physical laws, which is not to be found in another resembling watch that keeps "good time."

Just so, to pass from our homely example to the general case, whole sciences may be constructed whose objects of study have no common physical nature, hence no common physical definition, and which formulate laws governing the (non-physical) behavior of those objects in non-physical terms. It would be none the less true that *each* body was composed of particles of matter, and that each particle was subject to physical law. For example, it is readily imaginable that all attempts to find a physico-chemical definition of living organisms should fail. Is there any more reason that they should succeed than that all clocks should be susceptible of subsumption under a single mechanical definition? A living organism may be so called because of a peculiar function it fulfils, in spite of the complete heterogeneity of the physical means which are employed in the fulfilling. Should we expect, then, a science, whose object of study is the living organism, to formulate laws in physical terms? On the contrary, we should

expect to find just such terms as "habit," "variation from type," "selection," "struggle," appearing in accepted explanations. But that is no reason whatever for doubting that every bit of matter that enters into a living being behaves in a way that is explicable, as it is describable, in physical terms.

To conclude then this sketch of the physical world-order and its relation to the whole of natural phenomena: The definition of physical science here offered makes it the science of space detail. The hypothesis that every phenomenon describable in physical terms is incapable of explanation in such terms is a meaningless hypothesis; but we need not conclude from this that the physical is the only science. The physical details of nature may perfectly well be grouped in classes that are incapable of physical definition; for objects thus described non-physical laws may be developed. The same object, therefore, may be capable of a double description. Any given human body, *e.g.*, is made up of particles whose only description is physical. As so described its behavior as a whole is the resultant of the behavior of its parts, and is susceptible of physical explanation. This same human body is capable of classification with other human bodies, animal bodies, organisms, etc., whose common element is not physical. As so grouped its behavior is not physically described, and so cannot be physically explained. Yet this fact represents nothing indeterminate in the physical world-order

INDEX

Activity: distinguished from causality, 232–235; activity and teleology, 544–546.
Analysis: reflective, 37 ff.
Anaxagoras: on knowledge of reality, 133.
Anselm: ontological argument, 574; realism, 577.
Appearance: contrasted with reality, 132 ff.; Locke on the distinction, 138–144; the significance of the distinction, 148–154; appearance and reality and the Unknowable, 415 ff.
Argument from Design: see God.
Aristotle: on reason and lower functions, 78; conception of Divine Mind, 79; on seat of sensations, 235; on final cause, 532.
Atoms: modern doctrine, 142–145; ancient doctrine, 245–246.
Augustine: on the soul, 80; on time, 194–197, 204–207; on predestination, 551–552; realistic argument for God, 576–577; how we are to think of God, 604.
Automaton Theory: foundations laid by Descartes, 285–289; Spinoza's view, 289–293; Huxley on, 294–297; see Parallelism.

Bain, A.: on mind and body, 317–318.
Barker, G. F.: definition of energy, 141.
Berkeley: on the nature of the self, 82; subjectivism criticised, 124–128; on the real and the apparent, 148 ff.; on space, see Space; on time, see Time; on the mind and its ideas, 279; arguments for God, 573, 601.
Bradley: on the Absolute, 578–584.

Cassiodorus: on the soul, 80.
Cattell: on the perception of small differences, 46.
Causality: meaning of cause and effect, 232–233; causality and activity, 233–235; the subjective and the order of causes, 254–261; parallelism and causality, 318 ff.; mental phenomena and the causal nexus, 508 ff.; final cause, see End.
Clifford, W. K.: on space and the infinite, 172 ff.; on automatism and parallelism, 298 ff.; on identity of mind and brain, 307–312, 325 ff.; on the nature of things-in-themselves, 332 ff.; on the subjective and the objective order, 382–383; objects and ejects, 438–440; argument for mind-stuff, 514–517.
Common Thought: mind and world in, 1 ff.; vagueness of, 3–4; contrasted with science, 4 ff.
Consciousness: much of its content dim and vague, 34–36; how its elements are discovered by reflective analysis, 37–49; intuitive and symbolic, 49–55; how things are given in, 33 ff.; ultimate elements in, 67–70; broader and narrower sense of, 95–96; multiplex consciousness, 461–466, 475–477; the unity of, 473 ff.; subconscious mind, see Subconscious.
Conservation of Energy: see Energy.

Democritus: on knowledge of reality, 133; on existence of no-thing, 217; his atomism, 245–246, 554–555.
Descartes: nature of the soul, 81; its ubiquity in the body, 97; on reality, 118; mind and body, 268–269, 285–289; on substance, 273, 321–322; at times a natural realist, 411–412; ontological argument, 574–575.
Despine: on hypnotic phenomena, 501.
Determinism: the only doctrine that guarantees freedom, 567; account of the doctrine, 567–569.
Disk: illustration of revolving, 177 ff.

Eject: see Clifford; can eject become object? 466–472.
Elements: ultimate elements in consciousness, 67–70.
End: and purpose, 527 ff.; is the end a cause at all? 529; Spinoza on, 530; Janet on final cause, 532–539; the doctrine of ends, 538–549; parallelism and teleology, 542; no end without consciousness, purpose in nature, 547–549.

Energy: defined, 141; Ostwald's conception, 518–519; conservation of energy and mental phenomena, 520–526.
Epicurus: the father of the "free-willist," 555.
Epi-phenomenon: the term unfortunate, 542, 547.
Eternity: not timeless, 608.
Evolution of Mind: 508 ff., 526.
Existence: double sense of the word, 119–131; existence of the world when unperceived, 415 ff.; existence of other minds, 433 ff.
Explanation: meaning and limits of, 237–238; explanation of connection between mind and body, 307–312, 321–331, 395–398; limits of physical explanation, 613 ff.
External World: in common thought, 2–3; in science, 4 ff.; psychologists' position, 11; representative perception criticised, 17 ff.; illustration of the prisoner, 18–20; the doctrine that we perceive percepts and things side by side, 30–32; analysis of a concrete instance, 99 ff.; world composed of sensational elements, 115–118; what is meant by real things, 118–120; danger in phrase "sensational elements," 120–123; distinction between appearance and reality, see Appearance; consists of matter and energy, 141 ff.; tactual things the real, 148–154; objection to reality of molecules and atoms answered, 154–161; world in space and time, 210 ff.; world as mechanism, 226 ff.; the objective order in experience, 372 ff.; external world not the Unknowable, 415 ff.; in what sense we perceive the *same* world, 455–457; the causal nexus and mental phenomena, 508 ff.

Fate: story of Œdipus, 550; fate in the Greek literature, 550–551; conception not irreligious, 551; Augustine's fatalism, 551; what is fatalism? 552; causes of, 553–554; doctrine not scientific, 554; resembles "free-will" doctrine, 567.
Fechner: on consciousness in plants, 460; on negative sensations, 503–505.
Final Cause: see End.
Form and Matter: the distinction between, 57 ff.; form sometimes treated fantastically, 60–63; sometimes confounded with material element, 63–67.
Foster, Sir M.: on mind and body, 257.
"Free-will": Lucretius on, 555–558; the doctrine not a religious one, 557; "free-will" and parallelism, 559–560; what is "free-will"? 560–561; consequences of the doctrine, 561–563; just a little "free-will," 564; significance for morals, 565; freedom and "free-will," 566; fatalism and "free-will," 567.

Gerson: comment on ontological argument, 575.
God: purpose in Nature, 547–549; arguments for God, 572 ff.; Berkeley's argument, 573; Anselm's ontological argument, 574; Descartes' version, 574–575; Gerson's comment, 575; Augustine's realism, 576–577; Anselm, Bruno, and Spinoza, 577–578; Spencer's quasi-theism, 578; Bradley's Absolute, 578–584; Scotus Erigena and the Absolute, 584; Royce's argument, 585–597; argument from design, 598 ff.; God and immortality, 605–608.
Green, T. H.: on things and relations, 63–70; on the self or knower, 86–88; the timeless knower a useless assumption, 207–209, 478–485; consciousness as agent, 331.

Hamilton, Sir W.: on space, 166; on time, 198; on consciousness, 331; on relativity, 378; on natural realism, 411; on unconscious mental modifications, 490–503.
Höffding: inner identity of mind and matter, 325–326.
Hume: his nominalism, 44 ff.; on the self or mind, 83; subjectivism criticised, 129–130.
Huxley: on natural necessity, 236; on animal automatism, 294–297; on proof of other minds, 441.

Idealism: subjective, an impossible doctrine, 363, 364–366; Berkeley's confusion of the two orders of experience, 412–413.
Ideas: in common thought, 3–4; in psychology, see Psychology, and Psychological Standpoint; time and place of, 385 ff.; see Mind.
Immortality: arguments for, 605–608.
Impressions and Ideas: the distinction, 56.
Infinity: of space and time, 216–224.
Interaction: see Mind.
Intuitions: not necessarily trustworthy, 97–98; intuition of space in the Kantian doctrine, 165–168; the world in intuition and in conception, 210 ff.

James, W.: on form and matter, 164; on the doctrine of interaction, 282; on parallelism, 317 ff.; on mental phenomena and evolution, 523.
Janet, Paul: on final cause, 532–539.

Janet, Pierre: on the unity of the ego, 465, 473 ff.; on multiplex personality, 476–477; the synthetizing activity, 478–479; other minds, 482.
Jevons: on causality, 258.

Kant: on the empirical and the rational self, 84; on space, see Space; on time, see Time; on intuition and conception, 210 ff.; on empty space, 221.
Knower: see Self.
Knowledge: knowledge *what* and knowledge *that*, 63–70.

Localization: of mental function, 313–314; time and place of sensations and ideas, 385 ff.
Locke: nature of the soul, 82; on appearance and reality, 138–144; on secondary qualities of bodies, 253; on substance, 273–274, 326–327; slips into natural realism, 412.
Lodge, Sir O. J.: on mind and brain, 315–316.
Lucretius: on "free-will," 555–558.

Mach: on causality, 235.
Mass: its measurement, 611.
Materialism: its insufficiency, 245 ff.; mind as a secretion, 249–251; mind as a function of brain, 251–253; science and the subjective, 253 ff.; compared with idealism, 414.
Mathematics: nature of mathematical knowledge, 7–9; infinite divisibility of spaces and times and the mathematics, 184 ff.; mathematical relations and existence, 222; geometry how far a physical science, 610.
Matter: as treated by science, 141 ff.; defined, 226.
McCosh: on mind and body, 270; intuition, 331.
Mechanism: the world as mechanism, 226 ff.; attitude of science, 226–228; objections of Dr. Ward, 228 ff.; mechanism and causality, 232–235; mechanism and necessity, 235–237; mechanical explanation, 237–238; are human beings mechanisms? 238 ff.; mechanism of the world, and mental phenomena, 508 ff.; mechanics and space measurement, 610–611.
Melissus: on infinity of Being, 216.
Mercier: on mind and body, 523.
Mill, J. S.: confuses perceptions and things, 131; on substance and qualities, 274; confuses the subjective and the objective orders, 380–381; argument for other minds, 434–437.
Mind: see Self, and Consciousness; disputes as to ultimate nature of, 230–231; doctrine of the atomists, 246; misconceived by the materialist, 247 ff.; relation to the order of causes, 254 ff.; doctrine of the interactionist, 265 ff.; interactionism materialism in disguise, 265–272; mind as substance, 272–280; ideas interacting with matter, 280–283; automaton theory of, 284 ff.; parallelism, see Parallelism; mind and brain identical, 307–312, 321–331; distinction between mind and world, 364 ff.; subjective and objective orders in experience, 372 ff.; nature of connection between mind and body, 395–398; existence of other minds, 433 ff.; can existence of other minds be *proven*? 448–453; our knowledge of the contents of other minds, 453–455; can two men perceive the *same* world? 455–457; limits of evidence for other minds, 458 ff.; mind-stuff theory, 335, 461; more than one mind in one organism, 461–466; can eject become object? 466–472; the unity of consciousness, 473 ff.; unity of consciousness and the Neo-Kantian activity, 478–485; subconscious mind, see Subconscious; mental phenomena and the causal nexus, 508 ff.; Spinoza and the world of mind, 509–510; Spencer on origin of mind, 513–514; mind-stuff and evolution, 514–517; Ostwald on mind and matter, 518–520; mental phenomena and the conservation of energy, 520–526; mental evolution, 526; Divine Mind, see God; immortality of the mind, 605–608.
Mind-stuff: Clifford's doctrine of, 335, 461, 514–516.
Minimum sensibile: 169–171.
Minimum visibile: 491 ff.

Natural Realism: doctrine of Reid criticised, 400–411.
Necessity: double sense of word, 235–237.
Nominalism: see Realism.

Objective Order: see Subjective Order.
Occasionalism: the doctrine, 289.
Œdipus: story illustrative of fatalism, 550.
Ontological Argument: see God.
Ostwald: on mental phenomena and physical, 518–519.
Other Minds: see Mind.

Parallelism: see also Automatism; Clifford's account of, 298 ff.; explanation of parallelism, 307–312; what parallelism means, 315; what it does not mean,

315 ff.; Lodge, Clifford, James, Bain, quoted, 315–321; again, explanation of parallelism, 321–331; parallelism taken literally self-destructive, 332 ff.; how justified, 371 ff.

Pearson, K.: on cause and explanation, 237; on the "Telephone Exchange," 242 ff.; on the possibility of directly knowing other minds, 466–467.

Physical Science: definition of, 609; which are the physical sciences, 612; other sciences, 612 ff.

Place: of sensations and ideas, 385 ff.

Plato: on higher and lower soul, 78; tripartite soul, 285.

Plotinus: on the soul, 80.

Pollock, Sir F.: on Clifford's doctrine, 307.

Predestination: 551–552.

Predetermined Harmony: the doctrine, 289.

Primary Qualities: Locke on, 139–140, 146–147.

Prisoner in the Cell: illustration of, 18–20.

Protagoras: his scepticism, 133–134.

Psychological Standpoint: self-contradictory, 17 ff.; illustration of the prisoner in the cell, 18–20; doctrine of representative perception criticised, 20–26; objection to psychological standpoint answered, 30–32; the standpoint modified, 371 ff.

Psychology: psychology as natural science, 9–16; psychology and metaphysics, 16.

Pyrrho: his scepticism, 133–134.

Realism and Nominalism: 37–55; realism of Augustine, Anselm, Bruno, and Spinoza, 576–578.

Reality: what is meant by the word, 118–120; contrasted with appearance, 132 ff.; reality of the world of atoms and molecules, 154–161; the real world in space and time, 210 ff.; reality as thing-in-itself, 334 ff.; reality not the Unknowable, 415 ff.

Real Things: analysis of a concrete instance, 100 ff.; see Reality.

Reflective Thought: 37–43.

Reid: see Natural Realism.

Representative Perception: doctrine criticised, 20–26.

Richter, Jean Paul: on solipsism, 440–441.

Royce, J.: argument for God, 585–597.

Scientific Thought: contrasted with common thought, 4 ff.; nature of, illustrated by botany, zoölogy, physiology, 5; by chemistry, physics, mathematics, 6–10; by psychology, 9–16.

Scotus Erigena: on the Absolute, 584.

Self: to the child, 1; to the plain man, 3–4; to the psychologist, 14; doctrine of the self or knower, 71–93; historical sketch, 78–88; doctrine of the atomic self, 262 ff.; the Neo-Kantian activity and the unity of consciousness, 478; see Consciousness, and Mind.

Sensation: contrasted with idea, 56, 106; sensations and things, 99 ff.; criterion of sensation, 103–106; distinction between sensations and things, 106–114; sensational elements and the external world, 115–123, 369 ff.

Similarity: nature of, 46–49.

Socrates: on explanation by reference to causes, 613–614.

Solipsism: the doctrine criticised, 440–441.

Space: the plain man's notion of, 162–163; Kantian doctrine contrasted with Berkeleian, 163; exposition and criticism of Kantian doctrine, 163 ff.; intuition of space, 165–168; Hamilton and Spencer quoted, 166; Zeno on, 172; Clifford on infinite divisibility of, 172 ff.; the moving point and the revolving disk, 177 ff.; infinitely divisible and infinitely divided, 183; space and the mathematics, 184 ff.; Kant and real space, 184–188; the Berkeleian doctrine, 188–193; space as intuition and as conception, 210 ff.; knowledge of space not independent of knowledge of the world, 216 ff.; infinity of space, 216–224; empty space, 224–225.

Spencer, H.: on space, 166; the Unknowable, 422–428; on the gulf between the mental and the physical, 512–513; on the origin of consciousness, 513–514; on the primitive nervous shock, 516–517; his quasi-theism, 578.

Spinoza: nature of the mind, 81–82; parallelism, 289–293; influenced Clifford, 307; mind and body the same thing, 322–323; on a case of loss of memory, 466; on the self-sufficiency of the world of ideas, 509–510; on final causes, 530.

Stoics: on fate, 551.

Subconscious Mind: three senses of the word subconscious, 488–489; Hamilton's argument for unconscious mental modifications, 490–503; Fechner on negative sensations, 503–505; the significance of the subconscious, 505–507.

Subjective Order: contrasted with the objective, 372 ff.

Symbol: the nature of, 49–55; ideas as symbols of external world, 112–114, 213–214.

Teleology: 527 ff.; see also End.

Thing-in-itself: Clifford's argument for, 334 ff.
Time: Augustine on nature of, 194–197; Kantian doctrine criticised, 198–201; the Berkeleian doctrine, 201–202; crude time and real time, 202–204; the Augustinian problem solved, 204–207; the timeless knower explains nothing, 207–209; Augustine on time before the creation, 216; time as intuition and as conception, 210 ff.; knowledge of time not independent of knowledge of the world, 216 ff.; infinity of time, 216–224; time of sensations and ideas, 385 ff.; time and arguments for immortality, 607–608.

Units: physical, 611–612.
Unknowable: distinction between appearance and reality and the, 147; criticism of Spencer's doctrine, 422–428.

Ward, J.: on the concepts of mechanics, 228 ff.
World: the world as unperceived, 415 ff.; see External World.

Zeno: on infinite divisibility of space, 172.

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